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HOW EFFECTIVE ARE ALCOHOL AND OTHER DRUG PREVENTION AND TREATMENT PROGRAMS ?

canada's drug strategy

Canada

HOW EFFECTIVE ARE ALCOHOL AND OTHER DRUG PREVENTION AND TREATMENT PROGRAMS ?

A REVIEW OF EVALUATION STUDIES

A Canada's Drug Strategy Baseline Report

A Technical Report
Prepared by
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For the
Health Promotion Studies Unit
Health Promotion Directorate
Health Services and Promotion Branch
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PREFACE

This is the third in a series of baseline reports initiated by the Federal/Provincial Committee on Alcohol and Other Drugs following the launching of Canada's Drug Strategy.

The first two reports, Alcohol in Canada, and Licit and Illicit Drugs in Canada, were developed by the Health Promotion Directorate to provide Canadians with accurate and timely information about the nature, extent, patterns and consequences of alcohol and other drugs use. The present report provides readers with a summary of findings based on evaluations of alcohol and other drugs programs across Canada. One purpose has been to consolidate a massive literature on the effectiveness of these programs to assist program planners and service providers in developing and implementing programs that are consistent with up-to-date research findings. A second purpose has been to examine Canadian evaluation studies in the context of the broader international literature. This was intended to highlight not only the important Canadian contribution to this literature but also provide some direction as to how the evaluation function within Canada's alcohol and other drugs programs might be improved.

Canada's Drug Strategy

This baseline report is part of Canada's Drug Strategy (CDS), launched on May 25th, 1987. It is based on extensive consultation between the federal government, provincial and territorial governments, non-governmental organizations and addiction experts.

The federal government allocated $210 million over five years to enhance existing programs and to fund initiatives in five federal departments.

The objective of the CDS is to reduce the harmful effects of substance abuse on individuals,families and communities by addressing the supply and demand sides of the problem.

Canada's Drug Strategy balances prevention / education measures on the one hand with interdiction / enforcement measures on the other. It is founded on the premise that long-term reduction in substance abuse can only be achieved by addressing the root cause of the problem – the demand. Thus, about 70 of of Drug Strategy resources are directed at the priority areas of education, prevention and treatment.

When Canada's Drug Strategy was launched, five federal departments received funding for new initiatives under the leadership of Health and Welfare Canada. The overall Strategy, however, comprises many federal departments. Some received new funding for programs already in existence. Others have subsequently developed or are in the process of developing programs related to combatting alcohol and other drug abuse. All are partners in Canada's Drug Strategy — as are the provinces and territories, and organizations receiving federal funds for programs aimed at reducing alcohol and other drug abuse.

At the present time,14 federal departments and agencies,all of the provinces and territories and hundreds of non-government organizations can be counted as partners in Canada's Drug Strategy.

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HIGHLIGHTS

How Effective Are Alcohol and Other Drug Prevention and treatment Programs? A Review of Evaluation Studies.

By Marc Eliany and Brian Rush Ph.D.

WHAT WORKS?

In spite of the complexity of alcohol and other drug problems, the literature on these subjects does offer us some guidance. In general, well-coordinated comprehensive strategies that combine regulation, taxation and community-wide campaigns tend to produce slow but positive results (see, for example, efforts to reduce smoking).

Control policies such as increasing the minimum drinking age are effective in reducing alcohol-related fatalities. Restriction on the retail availability of alcohol, especially off-premise sales, are effective in reducing alcohol-related problems. Another positive measure is increases in the price of alcohol. Furthermore, programs that train servers in bars have proven their effectiveness in reducing intoxication, and drinking and driving among bar patrons.

Community-wide interventions such as education and media campaigns appear to be most effective when directed towards changing social norms rather than fostering behaviour change.

Early detection instruments, such as CAGE* and AUDIT (the Alcohol Use Disorder Identification Test), are useful. It seems questioning people using such instruments can more accurately detect alcohol or other drug problems than using chemical analysis.

Research supports the effectiveness of intervention programs that are oriented towards changing behaviour—so long as they are brief. Longer-term interventions appear to be no more effective, and often are less effective. The effectiveness of psychotherapy is also not well-supported by an evaluation of the literature. The perceived effectiveness of self-help programs such as Alcoholics Anonymous (AA) is largely unsubstantiated by the literature; however, four out of five Canadians would prefer to seek help from such groups over professional counselling.

With the exception of diazepan as an aid in alcohol detoxification, psychotropic drugs are not considered an effective treatment strategy for alcohol and other drug problems. Methadone, and anti-disotropic drug, is the treatment of choice for opiate dependence, particularly since it is taken orally and thus reduces the risk of HIV infection through dirty needle use.

*Cage is an acronym for the four questions of the instrument: Need to **C**ut down on drinking? **A**nnoyed by criticism about your drinking? **G**uilty about drinking? Need a morning drink or **E**ye-opener?

Most studies on out-patient and home detoxification approaches have recorded positive results; long-term residential programs require more evaluation. The literature presently suggests out-patients programs are more successful and significantly more cost-effective.

WHAT IS NEEDED?

- More process-oriented evaluation that documents how programs are implemented and how well they were received;
- Cost-effectiveness studies;
- Studies aimed at determining the most effective means of disseminating new knowledge gained from research into prevention and treatment programs;
- Funding to develop dependable evaluation research;
- Training for program managers and policy-makers in evaluation techniques as well as for candidates for evaluation positions;
- Practical evaluation measures;
- The adoption of evaluation assessment practices before the actual evaluation studies take place to ensure these practices are suitable and meet program objectives.

TABLE OF CONTENTS

PREFACE i

ACKNOWLEDGEMENTS ii

HIGHLIGHTS iii

CHAPTER ONE: INTRODUCTION 1
- Alcohol and Other Drug Problems in Canadian Society 1
- The Response to Alcohol and Other Drug Problems in Canada 1
  - *Health Promotion* 2
  - *Health Recovery* 3
- The Role of Research and Program Evaluation 4
- Objective of this Report 4
- Limitations of the Review 5

CHAPTER TWO: HEALTH PROMOTION PROGRAMS 7
- Health Promotion Programs in Canada 7
- Overview of the International and Canadian Literature 8
- School Programs 8
- University/College Programs 11
- Mass Media Programs 13
- Family-Based Prevention Programs 15
- Community Programs 17
- Server Intervention Programs 20
- Alcohol Control Policies 21
- Policies Controlling the Physical Availability of Alcohol 21
- Policies Controlling the Economic Availability of Alcohol 23
- Policies Controlling the Social Availability of Alcohol 26
- Formal Social Control Policies Regulating Behaviour 28
- Methodological Issues in the Evaluation of Health Promotion Programs 30

92-07580/

CHAPTER THREE: EARLY INTERVENTION PROGRAMS 31
- Early Intervention Programs in Canada 31
- Overview of the International and Canadian Literature 32
- Programs for Impaired Drivers 33
- Programs in the Workplace 35
- Programs in Health Care and Social Service Settings 37
- Strategies for Detection 37
- Strategies for Intervention 41
- Programs For "High Risk" Populations 43
- Methodological Issues in the Evaluation of Early Intervention Programs 45

CHAPTER FOUR: TREATMENT/REHABILITATION PROGRAMS 47
- Treatment/Rehabilitation Programs in Canada 47
- Overview of the International and Canadian Literature 47
- General Issues in the Evaluation of Program Effectiveness 48
- Treatment Modalities 49
  - *Pharmacotherapy* 49
  - *Counselling and Psychotherapy* 50
  - *Alcohol and Other Drug Education* 52
  - *Confrontation* 52
  - *Marital and Family Therapy* 53
  - *Behaviour Therapy* 54
  - *Self-Help Groups* 61
- Treatment Context and Duration 62
- Assessment and Matching of Clients to Treatment 66
- Relapse Prevention and Continuity of Care 69
- Systems Issues in the Delivery of Treatment Services 72
- Methodological Issues in the Evaluation of Treatment/Rehabilitation Programs 73

CHAPTER FIVE: SUMMARY AND CONCLUSIONS 77
- What Kinds of Programs "Work"? 77
- Canadian Evaluation Studies 80

REFERENCES 83

CHAPTER ONE: *INTRODUCTION*

Alcohol and Other Drug Problems in Canadian Society

Alcohol and other drug abuse are among Canada's most important health and social problems. Problems related to alcohol and other drugs are found throughout the population, in all regions, age groups and socio-economic strata. The costs of these problems are high. Not only is there an enormous amount of suffering among individuals, but there are also high social costs — accidents, family violence, health care, reduced productivity and crime. In the fiscal year 1985-86 alone, costs in Canada for excessive alcohol consumption were an estimated $11.9 billion (Adrian 1988).

A recent review, Alcohol in Canada, published by Health and Welfare Canada (Eliany 1989a), provides an overview of the extent of the problem. Alcohol is the most widely used non-medical drug in Canada; 81% of Canadians age 15 and older were alcohol users in 1985. They purchased, on average, 10.2 litres of absolute alcohol per person. Most alcohol purchased is in the form of beer, accounting for about one-half of the total sales of absolute alcohol. About one-third of sales is accounted for by spirits, and one-sixth by wine. These proportions have been changing, with people buying significantly less spirits, somewhat less beer, and somewhat more wine than previously. While alcohol sales increased steadily from 1970 to 1975, they stabilized from 1975 to 1980. Between 1982 and 1986 there was an 8% decline in sales. In 1984, Canada ranked 21st in sales of absolute alcohol per adult, in a ranking of 32 industrialized countries.

While alcohol sales have declined, alcohol abuse is still a serious problem in Canada. A number of studies have suggested that between 4,000 and 5,000 deaths per year can be attributed to hazardous drinking, that many deaths among Canada's youth are due to alcohol-related problems (especially drinking and driving), and that many illnesses, including liver cirrhosis, are significantly related to alcohol consumption.

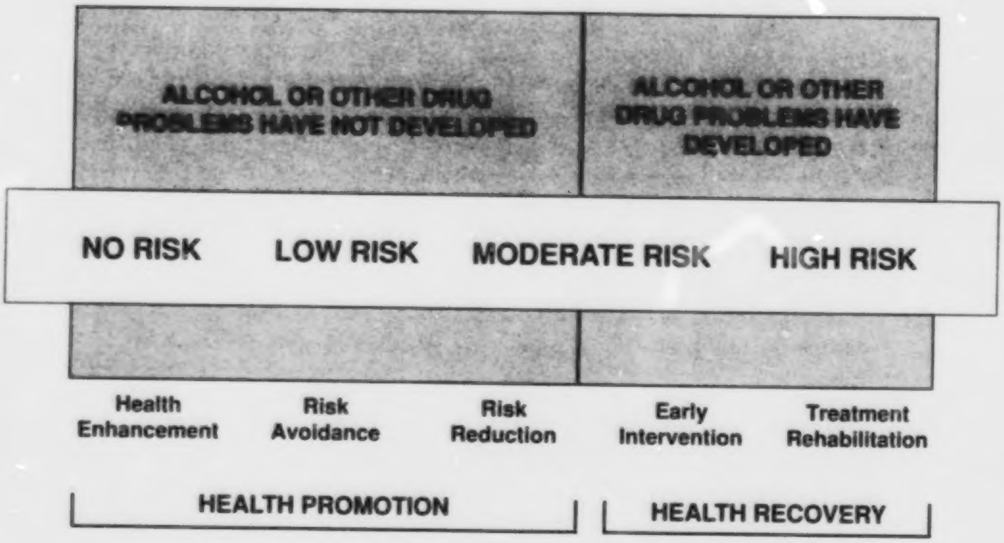
In contrast to alcohol, only a small minority of Canadian adults use illicit drugs, and an even smaller proportion use them on a regular basis (Eliany 1989b). For example, in 1985, 6% of adult Canadians reported using marijuana or hashish, less than 1% used cocaine and less than 2% used stimulants. There is also some indication that illicit drug use in Canada is, on the whole, declining. Despite these positive signs, illicit drug use remains a significant health and social problem. For example, for the population as a whole, drug-related hospital admissions increased gradually over the early 1980s; this stands in contrast to the decline in self-reported use found in large-scale surveys. Much of this increase was due to an increase in cocaine-related admissions. Drug use and related problems are especially significant within certain segments of the population such as "street youth." A recent study in Ontario found, for example, that among street youth in Toronto, 41% reported injection drug use (Smart et al. 1990). In this population, multiple substance abuse was the norm rather than the exception. Among young people in many Native communities, the abuse of solvents poses significant risks to health.

Given the extent of alcohol and other drug problems in Canadian society and the high costs associated with these problems, extensive and concerted efforts have been made to prevent these problems and provide treatment when needed.

The Response to Alcohol and Other Drug Problems in Canada

Given the diversity of Canada, its people and its alcohol and other drug problems, it is not surprising that the response to these problems has been multifaceted. To help conceptualize the range and complexity of this response, it is helpful to think of alcohol and other drug problems along a continuum. The greater the frequency and quantity of alcohol or other drug consumption, the higher the risk of developing problems. Different types of community programs are aimed at people at different points along this continuum of risk. Figure 1 shows a conceptual framework used in Ontario to illustrate how these different types of community interventions relate to this continuum of alcohol and other drug problems (Ontario Ministry of Health 1988).

Figure 1
Program and Service Strategies in Relation to the Risk Continuum for Alcohol or Other Drug Problems


ALCOHOL OR OTHER DRUG PROBLEMS HAVE NOT DEVELOPED
ALCOHOL OR OTHER DRUG PROBLEMS HAVE DEVELOPED
NO RISK
LOW RISK
MODERATE RISK
HIGH RISK
Health Enhancement
Risk Avoidance
Risk Reduction
Early Intervention
Treatment Rehabilitation
HEALTH PROMOTION
HEALTH RECOVERY

Within this framework, the community response to alcohol and OTHER drug problems is first divided into two broad categories: health promotion and health recovery.

Health Promotion

Under health promotion there are three broad goals. Programs for health enhancement are aimed at individuals at the lowest levels of risk. They incorporate abstinence from alcohol and other drugs as an appropriate aspect of a broader healthy lifestyle. Examples of this type of program might be fitness or nutrition programs that advocate an alcohol- and drug-free lifestyle. Programs for risk avoidance are aimed at those persons at low or minimal levels of risk. They seek to ensure that alcohol or drugs, if they are used, are used as safely as possible. Examples of this type of program might be the introduction of policies to prevent intoxication in community recreational facilities or the training of servers in drinking establishments to promote safe levels of drinking. Programs for risk reduction are aimed at those who drink or use drugs in a manner that clearly puts them at risk of health or social problems. These programs try to reduce the level and pattern of consumption before these problems develop. An example might be a program to prevent drinking and driving among high school students or to promote awareness of the proper use of medication among seniors. In practice, any one health promotion program often incorporates several objectives across this range from health enhancement to risk avoidance to risk reduction. The framework does, however, highlight the diversity of health promotion programs, all of which have a "prevention" objective.

Within the health promotion component of this framework, individual programs can be focused on a variety of targets – the person, the drug and the environment – and use a variety of strategies to create change – influence, control, competence development and environmental design (Torjman 1986).

With respect to the target of the program, interventions directed at the person are intended to improve a person's resistance to alcohol or drugs or to influences in the environment that promote the use of these substances. Key factors here are the individual's knowledge, attitudes, intentions, behaviour and skills. Health promotion interventions directed at the drug are intended to reduce the injuries its hazardous nature can cause. Key factors here are pricing, composition, mode of administration, labelling and packaging. Interventions directed at the environment attempt to separate people from drugs or create an environment supportive of individual behavioral change. The important factors here are advertising, availability, changing the physical and socio-cultural context, key influencers, institutions and legal sanctions.

Torjman (1986) also describes the four strategies to modify drug use among the identified target areas: influence, control, competence development and environmental design.

> *Influence* strategies attempt to modify individuals' attitudes in a certain direction and hence affect their behaviours.
>
> *Control* strategies encourage legislation or regulations in order to modify a drug, its availability, or demand for the drug to ensure that individuals cannot engage in the risky behaviour.
>
> *Competence development* strategies are activities intended to improve individuals' skills in order to enhance their self-esteem and thus reduce their need to engage in risky behaviours.
>
> *Environmental design* strategies are concerned with reducing stress within the individual's relevant environment — in particular, the school, workplace and community — in addition to altering the physical and socio-cultural environment.

These different goals, targets and strategies for change show the dynamic interplay between personal and community resources for health promotion and the need for all the various types of programs to support people in their own efforts to gain, regain or sustain a level of health sufficient for them to function well in society (Shain et al. 1990). This broad view of health promotion in the field of alcohol and other drugs is consistent with that of the Ottawa Charter and the Federal Health Promotion Framework (Epp 1986).

Health Recovery

The second broad category of community programs in the conceptual framework is referred to as health recovery, and within it, early intervention and treatment/rehabilitation. *Early intervention* programs try to identify alcohol and other drug problems in their earliest stages and provide relatively brief, low-cost interventions to reduce or eliminate alcohol or other drug use. Ideally these programs are offered at the point where alcohol and other drug problems are often first identified, such as schools, the workplace, family medical practices and hospitals. Examples might be a program for adolescent drug users in a secondary school setting or the routine screening for problem drinkers by primary care physicians. *Treatment/rehabilitation programs* are aimed at people experiencing serious alcohol and other drug problems. They seek to eliminate or reduce consumption and restore health in all its important dimensions. These programs are often conceptualized along a "continuum of care," including case management, assessment, detoxification, treatment in various residential and non-residential settings, and aftercare. A wide variety of behavioral, pharmacological and other types of interventions are used within this treatment continuum.

In summary, the conceptual framework in Figure 1 shows that just as the problems related to alcohol and other drugs can be viewed along a continuum of risk and severity, so too can the community's response to these problems. The various kinds of health promotion, early intervention and treatment/rehabilitation programs are all essential components of this response.

The framework does have its limitations for planning purposes. For example, it suffers from a lack of specificity concerning the level, pattern and context of consumption that is associated with "risk" from a strictly epidemiological point of view. It also does not adequately consider individuals who may not be using alcohol or other types of drugs but who may be "at risk" due to genetic or environmental influences (e.g., offspring of problem drinkers or youth living in high-density housing and poor economic conditions). These limitations notwithstanding, the framework is useful for a variety of purposes. One of its strengths is the implicit recognition that the goals of health promotion, early intervention and treatment programs are very diverse. These goals involve either the maintenance or reduction of the person's level of risk, as well as improving functioning in a wide variety of areas. This diversity of goals has clear implications for the evaluation of these programs since the selection of measures to judge a program's success must be consistent with the program's objectives. For example, some programs may aim simply to reduce the level of risk, rather than promote a completely alcohol- or drug-free lifestyle. An example would be a program for injection drug users where the main objectives concern reducing the use of needles and the risk of spreading HIV-infection, rather than the abstinence from drugs per se. The evaluation criteria for this program would be quite different from that of a program based on a more traditional treatment approach with abstinence as the main criterion for success.

The framework is also a useful conceptual model for integrating a very diverse and uneven literature concerned with the evaluation of "treatment" and "prevention" programs. Clearly, many different types of programs are subsumed by these broad categories. For purposes of the present review, three categories will be used (i.e., health promotion, early intervention and treatment) while recognizing that even within these three categories a wide variety of programs exist. One advantage of this approach to categorizing the literature is that it highlights the role of early intervention programs, which are emerging as a key component of a broad community response to alcohol and other drug problems (Institute of Medicine 1990a).

The Role of Research and Program Evaluation

The focus of this report is on the evaluation of alcohol and drug programs. These programs must be developed so that they are consistent with the results of carefully controlled research studies, and then evaluated on an ongoing basis with a variety of approaches. Although in many aspects of the alcohol and other drug field a considerable gap exists between current program delivery and the knowledge generated from research, few people would argue about the essential role of carefully controlled, basic research in providing the knowledge base on which programs must be built. However, not only must the programs being delivered be firmly grounded in strong empirical research, they must be evaluated in the field to ensure that they are implemented appropriately, reach the right target group, achieve positive outcomes and are reasonably cost-effective. The importance of program evaluation has increased over the last decade as part of a broader trend towards more accountability of human services and the need to make the best use of the available resources to address community needs.

There is certainly a strong sentiment within the alcohol and drug field in Canada that insufficient evaluation occurs. For example, in a recent Ontario survey of health promotion programs (Gliksman and Venesoen 1990), only about 16% of the programs had conducted a formal evaluation and 9% had conducted an informal evaluation (defined as an evaluation without statistical analyses, a comparison group or other control for confounding variables). In a recent national overview of alcohol and other drug treatment in Canada (Rush and Ogborne, in press), the lack of program evaluation was consistently decried, although evaluation was cited as an important part of program planning and delivery.

Objective of this Report

In the alcohol and other drug field there is an almost overwhelming volume of research and evaluation studies, most of them published in the last 20 years. For example, in the treatment area over 300 new reports were published between 1979 and 1985 alone (Miller and Hester 1986). How does one develop a sense of direction from such a massive literature, especially if one is a practitioner dealing with a busy caseload, or a community planner juggling a whole range of community development projects? How does one relate research findings in other countries to the situation in Canada with its own unique needs and programs? What is the situation in Canada vis à vis the evaluation of alcohol and other drug programs and how do the findings from Canadian studies fit into the larger context?

The objective of this report is to provide a critical appraisal of health promotion, early intervention and treatment approaches published in the international literature. In each of these three areas, the report provides a brief overview of the programs being delivered in Canada and attempts to integrate the findings from several Canadian evaluation studies into the larger international literature. Some limitations are also identified that seem to be restricting the practice of program evaluation within the field. This report should be viewed as part of a long-term process to raise the consciousness of Canadian program planners and practitioners of the need for more research and program evaluation and to assist them in improving the quality of studies in which they become involved.

Limitations of the Review

It is important to recognize that this review is unbalanced in four important, but unavoidable, respects.

First, the literature being reviewed is not balanced evenly between studies concerning alcohol abuse and those concerning other drugs. Many programs in the community, especially treatment programs, deal with a broad cross-section of substances and indeed would identify themselves as "substance abuse" services rather than as being either alcohol- or drug-specific. This "substance abuse" focus is not mirrored, however, in the literature where the majority of studies deal with the prevention and/or treatment of alcohol abuse separately from that of other drugs. Thus, the content of the present review is weighted towards health promotion, early intervention and treatment programs for alcohol abuse, with studies concerned with drugs other than alcohol integrated into the review where possible and appropriate.

Second, the nature and extent of program evaluation as currently practised across Canada is not balanced from a regional perspective. There are many reasons for this but it reflects, in part, the different stages in the development of services across the country and varying levels of resources available to undertake evaluation. Furthermore, information on past evaluation studies is not currently available from all the provinces and territories since much of this type of work is unpublished and not widely distributed. Hence, the Canadian studies cited here should not be taken to represent the totality of program evaluation in the Canadian alcohol and other drug field.[1] The authors hope, however, that this modest step forward will contribute to a more systematic and comprehensive review of program evaluations in Canada.

Third, the report does not cover in detail the prevention and treatment of alcohol and other drug problems among special subgroups of the Canadian population. For example, although alcohol and other drug problems among Native people in Canada are very serious, it is beyond the scope of this report to summarize the relevant literature for this population alone. Similarly, the literature concerning the effectiveness of prevention and treatment programs specifically for women, youth, the elderly, the multicultural population, the disabled and many other important subpopulations is not examined in this report in great detail.

Finally, the type and quality of research and evaluation studies that have been undertaken varies considerably. With respect to research studies in the international literature, the principal concern has been to make a causal association between the delivery of a certain type of program (or program component) and changes in outcome of individuals experiencing that program. With this objective in mind, experimental studies with random assignment to various conditions, including a control group, have the strongest research design. Other quasi-experimental designs that employ comparison groups and/or time series data are also relatively strong research designs, and are often more feasible to undertake than experimental studies. The emphasis in the present review of the international literature will be on outcome studies that meet these design requirements, with cautionary statements offered about the lack of these requirements in much of the research that has been published. With respect to more applied program evaluations, they can be broadly classed as process, outcome or economic studies (Posavac and Carey 1989).[2] As with the published international literature, the emphasis in this review will be on the evaluation of outcome. However, other types of evaluation studies will also be described where appropriate since they contribute significantly to the understanding of a program, its implementation, effectiveness and cost-effectiveness.

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[1] This review is based in part on recent summaries of prevention and treatment evaluation studies in Quebec (Chamberland 1989, 1990) and Alberta (Eliany and Tracey 1991).

[2] Several alternative classification schemes are possible for program evaluation studies. Posavac and Carey (1989) also consider needs assessments as a fourth class of evaluation studies. These studies are outside the scope of the present review and are being addressed separately in a national review of needs assess ments in the alcohol and other drug field (Rush 1989).

CHAPTER TWO: *HEALTH PROMOTION PROGRAMS*

Health Promotion Programs in Canada

As noted in Chapter One, health promotion programs cover a wide range of goals (health enhancement, risk avoidance and risk reduction), targets (person, environment and drug) and strategies (influence, control, competence development and environmental design). These programs also rest on a variety of theoretical foundations and may be implemented in a range of settings or systems within the community.

This diversity of alternatives, and the fact that one program often overlaps many of these features, makes it very difficult to describe the alcohol- and drug-specific health promotion programs in Canada. Furthermore, there has been no systematic study of the nature and extent of these programs as practised across all of Canada. These limitations notwithstanding, the current approach to health promotion is clearly much broader than in previous years. School-based programs, for example, have evolved from a very limited didactic, health education approach to include now a stronger theoretical base emphasizing peer influences, resistance to persuasion, beliefs about risks and consequences, social learning and self-efficacy (Gliksman and Smythe 1989). They are also more likely to be integrated into other community health promotion efforts (e.g., Flay 1986). Broader community-based interventions also rest on many of the same theoretical foundations as school-based programs, while also incorporating key principles of community development and empowerment (Labonté 1987). Efforts to restrict the physical, economic and social availability of alcohol through legislative or policy changes are now viewed as one aspect of a broader strategy to create a social and cultural environment conducive to abstinence or responsible use.

Health promotion programs are in a state of evolution. This broadening of focus is consistent with the vision of health promotion articulated, for example, in the Ottawa Charter and the federal health promotion framework (Epp 1986). The emerging themes are comprehensiveness, community participation and the integration of efforts among key community stakeholders (Shain et al. 1990).

A review of alcohol- and drug-specific health promotion activities has recently been completed in Ontario (Gliksman and Venesoen 1990), and the diversity of approaches that was observed probably mirrors the situation across the country. Based on a key informant survey of 250 individuals working in the field, over 523 alcohol- and drug-specific health promotion programs were identified as being operational in the summer of 1990. While the majority of programs (78%) sought to "provide education and promote awareness" of alcohol and other drug abuse, a wide variety of other objectives were noted (e.g., provide information on risks and consequences, improve life skills, improve parenting skills, provide drug-free environments). The most frequently identified target group was youth and children (50%), followed by the general public (25%) and parents (5.5%). The most common target area was the "person" with 64% of the programs trying to change knowledge, attitudes, intentions, behaviours and/or skills of individuals. Twenty percent of the programs were directed at making the environment safer or more supportive of individual changes and 16% of programs were aimed at the drug itself (e.g., making it safer). Most programs were implemented in elementary schools (40%), secondary schools (35%), or in the general community (56%).[3] Other avenues included the family, post-secondary schools, workplace, corrections and the implementation of social controls through legislation. The principal strategy being used was one of "influence" (62%). These programs tried to change knowledge or attitudes of the individual, as opposed to "competence development" (39%), environmental change (15.5%) or control strategies to reduce the supply or demand for alcohol or other drugs (11%).

Although comparable data from this survey do not exist for the remainder of Canada, these findings in Ontario do highlight the many different kinds of activities, targets and strategies that fall under the general rubric of health promotion. While the emphasis may be different in various parts of the country, it is likely that this diversity is also very much in evidence.

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[3] Since programs being surveyed could identify more than one target, system or strategy these percentages exceed 100%.

Overview of the International and Canadian Literature

The diversity of health promotion programs makes it difficult to categorize programs. In the most recent review of literature on the prevention of alcohol abuse, Moskowitz (1989) and used four broad categories of programs and policies:

- those aimed at controlling availability (e.g., physical, economic, social availability);
- those aimed at controlling individual behaviour through legislation (e.g., drinking and driving laws);
- those aimed at educating individuals (e.g., in schools, university, community, family, work place, mass media); and
- those aimed at creating safer environments (e.g., server intervention in drinking establishments).

A modification of this approach is employed here with the literature organized primarily around the setting or system in which the intervention is implemented. Program planners and practitioners should find this approach useful since the community setting or system is typically one of the first aspects of the program to be decided upon. Seven broad categories of programs are considered, with several subcategories within some of these groupings. The broad categories of health promotion interventions that are reviewed are:

- school programs
- university/college programs
- mass media
- family programs
- community programs
- server intervention in drinking establishments
- alcohol control policies and legislation

With the evaluation literature summarized in this fashion, it is important that the reader be aware that a comprehensive health promotion program often cuts across these categories, and that a multiplicity of goals, targets, strategies and theoretical bases may be involved. It is the case, however, that the first five of these categories, as currently practised, are predominantly oriented toward the person as the target, using influence and/or competence development as the main strategies for change. The theoretical foundations are primarily the knowledge/ attitude/behaviour theory, as well as the health belief, social learning, social influences and persuasion/communication models. Moskowitz (1989) combines these various theoretical models into three categories (see below), and notes that they are all loosely connected to a broad socio-cultural perspective emphasizing the normative pattern of alcohol and other drug use and related problems in society (Blane 1976).

The latter two categories of programs, server intervention and alcohol control policies, are usually targeted at either the drug or the environment, using control and/or environmental design as the main strategies for change. The theoretical foundations for these programs and policies are consistent with a broad ecological model of health behaviour whereby people are influenced by institutional, community and public policy factors, as well as inter- and intra-personal processes (McLeroy et al. 1988). Many of these prevention programs and policies are also compatible with the distribution of consumption model, which seeks to prevent heavy drinking and its consequences by controlling the average level of consumption in the population through restrictions on the availability of alcohol (see Rush and Gliksman (1986) for a comprehensive review and discussion of this prevention approach).

School Programs

Health promotion programs aimed at youth tend to be concentrated within the school system. Young people who are not in school, such as those who are "on the streets," are much harder to reach. School-based programs usually aim to prevent both alcohol and other drug abuse. The behavioral change model most widely-used in schools assumes that increased knowledge about the consequences of alcohol and other drug abuse will change attitudes towards these substances which will, in turn, lead to changes in behavioral intentions and alcohol- and drug-related behaviours. Other theoretical models used in school-based programs are the values/decision-making model and the social competency model (Moskowitz 1989). The values/decision-making approach focuses on the individual's self-examination of their needs or values and the roles that alcohol and other drug use serves in fulfilling these needs. These programs promote self-understanding and responsible decision-making to decrease the risk of alcohol and other drug use and related problems. The social competency model is the most recently developed approach and argues that people abuse alcohol and other drugs because they lack appropriate psychosocial skills. Common approaches feature the modelling of health-promoting behaviours, teaching skills to resist social influences that promote alcohol or other drug use, and teaching life skills such as communication and social skills. This approach has been considerably influenced by social learning theory and the concept of self-efficacy (Bandura 1977).

Comprehensive reviews of the evaluation literature on school-based prevention programs highlight a number of negative conclusions about their effectiveness (e.g., Staulcop et al. 1979; Kinder et al. 1980; Schaps et al. 1981; Moskowitz 1989; Gliksman and Smythe 1989). There is no consistent evidence to suggest that these programs are effective in either preventing alcohol and other drug use and abuse or in delaying experimentation. For example, Moskowitz et al. (1984a) studied a drug education program based on all three of the behaviour change models and found that the program had little impact. It was conducted at two high schools in the U.S. and involved twelve, 45-minute sessions covering such topics as decision-making, advertising, assertiveness, and information about alcohol and other drugs. The program had no impact on the knowledge, attitudes, or behaviour of girls, and no immediate effect on boys. At a follow-up five months later, some positive effects were found on boys' knowledge about drugs and their perceptions of attitudes toward drugs and the use of drugs by peers. However, the magnitude of the effects were of little practical significance and the authors concluded that the educational program had little utility. Similar conclusions have been drawn in many studies (e.g., Malvin et al. 1985). In addition, Goodstadt (1980) identified 15 studies in which drug education was found to have a negative impact, including increased drug use and a liberalization of attitudes towards drugs and drug use.

While Moskowitz et al. (1984a) found that the program they evaluated had little effect on knowledge, the more common finding is that school-based education programs do increase knowledge (Gliksman and Smythe 1989). However, relatively few programs influence attitudes, and even fewer influence behaviour. For example, Williams et al. (1985) found that adolescents who were given information about alcohol use from a credible communicator, and with low fear content in the messages, showed a gain in knowledge but no change in attitude.

Some evaluations of school-based programs have found reductions in alcohol and other drug use, but typically over the short-term. For instance, a program based primarily on the values/decision-making model was found to produce an immediate decrease in alcohol and marijuana use among 7th grade girls. However, the effects were not sustained a year later, and no effects were found on 7th grade male students or 8th graders (Schaps et al. 1982; Moskowitz et al. 1984b).

A comprehensive program for the prevention of tobacco, marijuana and alcohol use (Life Skills Training Program) was recently evaluated by Botvin (1987). The program was delivered to 7th graders by teachers or by peer leaders. At the end of Grade 7, reductions in cigarette, marijuana and alcohol use were noted for the peer-led program. However, by the end of the 9th grade only some effect on cigarette smoking remained. In general, there were more negative effects (i.e., increased use among the students in the intervention conditions) than positive effects.

Pentz and colleagues evaluated a community program in Kansas City targeted at adolescents and their parents, and which included a major school health education component concerning alcohol, tobacco and other drugs (Pentz, Dwyer et al. 1989; Pentz, Johnson et al. 1989). The program is based largely on the social competency/social influences approach to prevention. Although the effect of the school intervention cannot be isolated from other components of the overall program (e.g., mass media), results from the first three years of the project show a significant decline in cigarette, alcohol and marijuana use among adolescents in the intervention communities. Longer term data are not yet available.

In summary, there is considerable inconsistency in the results of these evaluations cited in the international literature. Although many programs employing the knowledge/attitudes/ behaviour model have been evaluated, empirical support for their effectiveness is quite limited. Some types of educational programs may influence knowledge, attitudes, and even behaviour, in the short-term. Some programs may also increase the likelihood of alcohol and/or other drug use. As with the knowledge/ attitude/behaviour model, research support for programs based on the values/decision-making approach or the social competency approach has been limited. Such programs have, however, been the subject of fewer evaluation studies than those based on the more traditional knowledge/attitudes/ behaviour framework.

These mixed findings are also evident in Canadian evaluations of school-based programs. Several such programs in Quebec are described by Chamberland (1989) in her review of the Quebec literature on efforts to prevent alcohol and other drug abuse. Process and outcome evaluation data are presented for some of these programs. One program was implemented in two primary schools in Quebec and an evaluation reported by Crete and Grignon (1983). Some of the program's objectives were to impart knowledge about drugs and drug use; change attitudes and behaviours with respect to drugs, and improve communication concerning drugs between youth, youth and their parents, and youth and adults. The program was multifaceted and included giving questionnaires to 4th, 5th and 6th graders to determine their knowledge and attitudes about drugs; an information session with parents to give them the results of the questionnaire and to tell them about the prevention program; group work by 6th graders on drug-related topics; and presentations of the results of the research to parents and other students. The process and outcome evaluation data showed mixed results. While the program was cited as having "gone well," several weaknesses were identified, including ambiguous goals; unclear roles and responsibilities of different participants; lack of continuity between different stages of the project; and the secondary role given to teachers who had to handle significant additional extra-curricular work without the necessary teaching materials. The comparison of the intervention and control groups on outcome measures showed that the program had no significant effect on knowledge or attitudes. While communication about drugs between students and their parents improved during the program, the achievement of this objective was not maintained after the program ended. Despite the lack of impact, both parents and students were positive about participation in the program.

An Ontario study of an alcohol education program by Schlegel et al. (1984) evaluated three alternatives aimed at 8th grade students – a three-session "facts" curriculum was compared to five and one-half and seven-session curricula combining facts about alcohol with teaching units concerned with values clarification and decision-making. Students getting the "facts" curriculum had lower alcohol consumption at post-test and at a six-month follow-up, compared to students in the other conditions, which showed no difference in consumption behaviour.

Educational theatre has been used as the vehicle for a school-based prevention program in many parts of Canada. This type of program is attractive to students because of its entertainment value and its potential for addressing key issues of concern to adolescents, their parents and the school. Theatre programs often have a participatory element that provides students with opportunities to interact with the performers and/or each other. This allows them to observe and/or practice alternative behaviour concerning the use of alcohol or other drugs (Atwood et al. 1987).

Evaluations of educational theatre programs indicate results similar to those of other types of school programs. Some evaluations show short-term gain in knowledge, attitudes and/or behaviour but no evidence of longer-term changes. Desbiens and Mercier (cited by Chamberland 1989) evaluated a play called "Captain Cosmos," which was directed at children in primary schools in the Montreal area. This program was based on the American "Dare" program with its "Just Say No" slogan. No change in attitude towards drugs and alcohol, or in the intention to consume them, were found in either the comparison or intervention groups. In Alberta, an evaluation of a performance called "Zeke and the Indoor Plants" showed a significant impact on student knowledge about the themes of the program (Atwood et al. 1987). An Ontario study by Gliksman et al. (1983) found that a live theatrical performance contributed to significant short-term changes in alcohol-related knowledge, attitudes and behaviour.

It is important to note that these evaluations of school-based theatrical programs, and many other Canadian studies of school interventions typically address process as well as outcome questions. Information from process evaluation concerning the implementation, coverage and quality of the program is usually very useful to program planners. It is also necessary to help explain why the intervention was successful or unsuccessful in achieving change in the participants. For example, Bartolotto and Nutter (1984) found in their evaluation of the "Punkerpine" theatrical program in Calgary and Edmonton that only 37% of teachers reported doing one or more of the specific performance follow-up activities suggested to them. Process evaluations of theatrical programs usually show that teachers and students rate the entertainment and educational value of the play very high (e.g., Atwood et al. 1987; Desbiens and Mercier (cited by Chamberland 1989)). Information from process evaluations can also show how a program may have potential spill-over effects beyond the classroom, into the family and community as a whole. An evaluation of Alberta's "Clever Classmates" education program (Hale-Matthews 1985) showed increasing parent and community involvement over the duration of the program. Community support for the program was demonstrated by documenting the time that was volunteered by community members as well as the donations of goods, services and money. These findings complemented the outcome data, which showed a significant gain in knowledge about alcohol and other drugs among program participants.

In summary, the results of Canadian evaluation studies of school-based prevention programs have generally been the same as those published in the international literature. Results are inconsistent about knowledge, attitude and behaviour change, and no approach has been associated with a major long-term change in alcohol or other drug use. However, despite the relatively poor outcome of these programs on actual alcohol- or drug-taking behaviour, it is likely that they will continue to play an important role in the development of comprehensive health promotion programs. Data from process evaluations clearly show that many types of programs are well received by children, adolescents, teachers and parents. There is also extensive public support in Canada for increased alcohol and other drug education and prevention programs (Eliany et al. 1990).

The question remains: what is the best way to design and deliver school-based programs that maximize the possibility of being effective in changing behaviour? It is quite clear that programs based only on the knowledge/attitudes/behaviour model lack empirical support. Considerable emphasis is currently being given to programs based on the social competency model, emphasizing peer and other social influences on alcohol and other drug use (e.g, Botvin 1986; Pentz et al. 1990). There is some evidence that peer-led programs can be effective (Klepp et al. 1986; Perry 1987) and perhaps more effective than teacher- or adult-led programs (Schaps et al. 1981). However, the results are far from consistent concerning this and other approaches aligned with the social competency model (Moskowitz 1989; Koslowski et al., in press).

Moskowitz concludes his recent review of alcohol prevention programs by stating that, to be effective, educational programs may require a change in community norms and values regarding alcohol and other drug use, much like that which has occurred over the last decade with smoking. Koslowski et al. (in press) argue that, even with respect to smoking, policy initiatives are probably more effective than any educational strategy. Recently, Goodstadt (1988) and Gliksman and Smythe (1989) have called for a more comprehensive approach, whereby school-based alcohol and other drug education programs are integrated with school alcohol and other drug policies, as well as early identification programs for youth at high risk. To reinforce the messages received in school, such school-based programs and policies should also be supported by the community, and be consistent with other interventions such as parenting programs, mass media campaigns and policy initiatives. The American program evaluated by Pentz et al. (1989) approximates many of these conditions and has shown positive preliminary results (see also section below on community programs). This integrated approach would seem to be the most prudent strategy at the present time, given the limited evidence from evaluation studies concerning the effectiveness of school educational programs that operate in isolation.

University/College Programs

Health promotion programs aimed at university and college students share much in common with programs targeted at students in primary and secondary schools. For example, the programs are usually based on similar theoretical models of health behaviour and elements of all three approaches described in the previous section are frequently employed: knowledge/ attitudes/behaviour, values/decision-making and social competency. One important difference, however, is that the university and college programs are often more comprehensive, for example, using various print and electronic media as well as policy changes concerning the availability of alcohol. This comprehensive approach has much in common with health promotion programs aimed at whole communities (see the section below on community-based programs).

Goodstadt and Caleekal-John (1984) reviewed 14 evaluations of alcohol education programs on college campuses, seven of which used a comparison group and assessed changes in self-reported, alcohol-related behaviour over time. Although they found that five of the programs reviewed were associated with fewer alcohol problems at post-test, the nature of the evaluations do not permit strong interpretations of causality (Moskowitz 1989). As with many quasi-experimental evaluations of health promotion programs, Moskowitz raised concerns about the equivalence of the experimental and comparison groups in these studies, especially since the former were usually composed of volunteers.

A study by McKillip et al. (1985) evaluated a multi-media campaign on a college campus which focused on responsible use of alcohol. Multi-media advertising (e.g., posters, advertisements, window displays, radio talk show) was used to promote two themes: it is not rude to refuse a drink, and friends do not let friends drive when drunk. Follow-up data gathered through interviews and questionnaires revealed that over half of the students recalled both of the theme posters used in the campaign. The authors concluded that mass media campaigns can have a significant impact on students' awareness of themes related to responsible alcohol use.

One program implemented at an American university attempted to influence all levels of the campus community (Kraft 1984). The program involved extensive educational approaches using mass media aimed at the entire university community, as well as intensive efforts such as workshops and academic courses, aimed at 5% to 10% of students. There were also community development efforts that sought to produce changes in the practices and regulations that influence alcohol use and abuse on campus. Although the evaluation data showed a small positive impact of the program on knowledge, few other effects were evident. The one component of the intervention showing an effect on behaviour was a one-semester seminar on how to plan and conduct an alcohol education colloquium. Results showed that participants in the seminar entered into drinking contests less frequently, reported getting a "buzz on" less frequently, and decreased their attendance at bars and parties. However, no significant differences were found for the average amount of alcohol consumed per occasion, negative alcohol-related behaviours, or outcomes related to alcohol problems. The results were difficult to interpret because the legal drinking age was raised during the course of the program. Given the very weak effects of the program, the authors' conclusion that the study "showed that concentrated primary prevention efforts could be successful in changing knowledge, attitudes, and behaviours of students" does not seem warranted. The authors themselves suggest that too much reliance was placed on one-session workshops with voluntary attendance; high risk groups did not participate in significant numbers in the most intensive aspects of the program; and the university community was too transient in nature.

The most comprehensive university-based health promotion program to be evaluated in Canada was implemented at the University of Western Ontario in London, Ontario. The program was called Campus Alcohol Policies and Education (CAPE) and sought to prevent problems related to four high risk drinking behaviours—drinking to drunkenness; maintaining a high average daily consumption; drinking and driving; and drinking prior to or during academic activities (Hart 1986). Although it targeted first-year students, the program was expected to have an impact on the entire university community over the long term. The CAPE program had two interrelated components: 1) an extensive education campaign that included mass media, small group, and individual communication strategies; and 2) a set of campus alcohol policies to guide the sale and use of alcohol in outlets on campus, including training bartenders to avoid serving intoxicated patrons, making food and non-alcoholic drinks more available, promoting "light" beers, and establishing a differential price structure depending on alcohol content.

There were a number of problems in the implementation and evaluation of the program (Gliksman, Hart et al. 1989; Gliksman 1990). The process evaluation showed the failure of alcohol policies to be implemented as specified, lack of cooperation from managers in the bars, and the lack of commitment from some university personnel. Initial data on program effectiveness were not encouraging. However, a second intervention that reduced the length of the mass media campaign, and only implemented policies on which there was unanimous agreement, appeared to have more success. Using a more complex evaluation design, Gliksman, Hart et al. (1989) concluded that significant positive changes occurred in the knowledge about, and attitudes towards, alcohol of the first-year students receiving the program, compared to students at another university who did not. Experimental students also showed a small decline in the number of drinks consumed per week, while comparison students showed a sharp increase between pre-test and post-test. This suggested that the program had the effect of moderating or halting the typical sharp increase in alcohol consumption by first-year students over the course of the year.

In summary, the results of the evaluations of university- and college-based programs have been inconsistent. As with the school-based programs, some studies show short-term changes in knowledge and attitudes, and perhaps behaviour, but evidence of long-term impact is lacking. University and college students represent one of the heaviest drinking subgroups in the population (Gliksman, Engs and Smythe 1989). There is a need for further development of program alternatives appropriate for this target group, and replication of the positive findings obtained in some of the evaluation studies.

Mass Media Programs

Mass media campaigns, like most educational health promotion programs, have been based primarily on the knowledge/attitude/behaviour model. They also appear to have similar effects on alcohol and other drug use as do other educational programs: they have their greatest impact upon knowledge and awareness levels, a lesser impact on attitudes, and a negligible effect upon behaviour (Hewitt and Blane 1984). Many mass media programs are now integrated into broader community-wide health promotion programs.

Moskowitz (1989) examined six of the best designed evaluations of mass media campaigns conducted between 1971 and 1982. These had been reviewed previously by Hewitt and Blane (1984). Three of the campaigns focused specifically on alcohol misuse or responsible drinking, using broadcast and/or printed media over a 2- to 3-year period (Louis Harris and Associates 1974; King and Anderson 1981; Wallack and Barrows 1982-83). Two of these programs also included a community organization component (King and Anderson 1981; Wallack and Barrows 1982-83). As noted by Moskowitz (1989), none of the studies found changes in knowledge or behaviour, and only one of the studies found attitudinal change, and this was both negative and positive (King and Anderson 1981). A fourth campaign discussed by Moskowitz (1989) was a broad health promotion program using multiple media. The evaluation showed some small positive changes in knowledge, a marginal change in attitudes and no change in behaviour (Mielke and Swinehart 1976). The last two studies reviewed were Canadian studies of the effects of anti-drinking and driving campaigns (Pierce et al. 1975; Vingilis et al. 1979). Both campaigns produced gains in knowledge, and one was associated with several small positive changes in self-reported behaviour (Pierce et al. 1975). Moskowitz (1989) concluded that, as with school-based educational programs, mass media campaigns alone are not likely to produce significant and lasting changes in alcohol or other drug use.

Rather than focus on changing the behaviour of individuals exposed to a media campaign, it has been suggested that such programs may be helpful in increasing public support for other types of health promotion efforts, such as taxation policies or restrictions on advertising. The evaluation of the Community Action Project in New Zealand (Casswell and Gilmore 1989) illustrated how a mass media campaign could make such a contribution. In this project, six cities were selected; two received a mass media campaign, two received this campaign plus a "community organizer" and two received no additional alcohol-related activity. Objectives of the media campaign included stimulating discussion of policy issues and influencing community support for restrictions on the availability and advertising of alcohol. On many of the evaluation measures (e.g., level of support in the general population for restrictions on availability) there was a general liberalization of attitudes in the comparison communities that did not get the media campaign. The fact that the intervention communities did not follow this trend was viewed as a positive effect of the program. Although the effect of the mass media component on many of the study variables could not be isolated from the effect of the community organization component, it was concluded that mass media campaigns could be a useful aspect of a more comprehensive health promotion program.

In addition to the Canadian studies cited by Moskowitz (1989), a number of evaluations of media campaigns have been conducted in Canada. Many of these campaigns have a broad health promotion emphasis. Health and Welfare Canada (1988) evaluated three English and three French national public awareness and information campaigns: "Really me"/« Les drogues . . . pas besoin! » (Action on Drug Abuse Program); "Play It Smart"/« Moi, j'ai toute ma tete! » (Long-term National Program on Impaired Driving); and "Break Free"/« Pour une génération de non-fumeurs » (National Program to Reduce Tobacco Use). Data were collected in two waves through personal, in-home interviews and questionnaires. A high percentage of individuals in the primary and secondary target groups in each tracking study, including those at risk, were aware of the campaign. Most respondents felt that the ads were interesting and credible, and many were able to recall several key messages in the campaign. Survey respondents were also asked whether they believed that they, or others, were likely to change their behaviour regarding using alcohol and other drugs, drinking and driving, and smoking as a result of the campaign. The majority responded positively to these measures of behavioral intention.

Caverson et al. (1990) combined the use of mass media with other enforcement and persuasion strategies in a program to prevent drinking and driving in Sudbury, Ontario. Drivers were randomly stopped for a one-year period and those who had not been drinking were rewarded with an incentive item (a plastic license folder) to reinforce compliance with the law. Concurrently, media messages were also targeted at these same drivers using the theme "Thanks for Being a Safe Driver" in an attempt to further reinforce the low risk behaviour of sober driving. The evaluation focused primarily on measuring community support and the results were very positive. Although the impact of the campaign on attitudes and drinking-driving behaviour is unknown, this is another example of how a mass media campaign can be integrated with other types of community health promotion interventions.

Whitehead (1978) reported on the evaluation of the AWARE campaign in Saskatchewan, a mass media campaign with a responsible drinking theme. The outcome evaluation was designed as a panel study, with the same sample of people interviewed before and after a year of exposure to the program. Both a rural community and urban community were included. A comparison community from another province was also included that was not involved with the campaign. Results of the evaluation provided little evidence that the media campaign had a significant effect on the relevant attitudes of the population that were exposed to it (e.g., attitudes toward intoxication; acceptance of social policy measures). Other elements of the evaluation were concerned with program implementation and assessing actual exposure to, and recall of, the media ads. Spontaneous recall of the content of the ad was low (Whitehead 1979). However, the ads were noticed by the residents of Saskatchewan and most of them were favourably disposed to them.

Over the 1980s, the Alberta Alcohol and Drug Abuse Commission (AADAC) devoted considerable resources to mass media campaigns aimed at adolescents, and to a lesser extent, their parents. The campaigns have included television, radio and print messages, as well as Zoot Capri, a magazine for adolescents featuring articles of general interest and specific themes related to alcohol and other drug prevention. A multifaceted approach has been employed for the evaluation of these programs and some aspects of these evaluations have focused on behavioral outcomes.

One study evaluated the impact of AADAC's primary prevention campaign for adolescents over a four-year period (Thompson 1986a). Evaluation data gathered through interviews with Alberta teens and their parents showed that components of the media campaign were highly successful in increasing awareness of substance abuse for adolescents and their parents. For example, all of the teens (100%), and most mothers (87%), recalled at least one of the messages of the AADAC campaign. The majority of teens and parents who were aware of the campaign also indicated that it was helpful to them personally. Teens reported that it had helped them to better handle pressures to drink, use other drugs or smoke. Mothers reported that it had helped them talk to their teens about handling these pressures. Additionally, the percentage of Alberta's teenage drinkers declined between 1981 and 1985 from 55% to 47%. In contrast, the percentage of teenage drinkers showed no such decline in the comparison province of Manitoba, where campaigns similar to AADAC's were not implemented (49% in both 1981 and 1985). Furthermore, both frequency of drinking occasions and total quantity consumed by Alberta teens showed a significant decline between 1981 and 1985. There was also a trend toward a delay in the onset of drinking. In sharp contrast, opposite trends appeared in Manitoba. Many of these findings were replicated in a subsequent household survey comparing Alberta and Manitoba teens (Thompson et al. 1987).

The most recent follow-up study in the AADAC evaluation was undertaken to determine longitudinal changes and trends in achievement of the program objectives (Thompson 1988). The full series of household surveys of Alberta and Manitoba teens and their parents (1981, 1983 and 1985-87) were used to assess the impact of the media campaign. Similar to previous studies, results showed that the majority of Alberta teens and parents were aware of the campaign and found it to be helpful to them personally. However, contrary to past findings, the data from all five waves showed a departure from the positive trends for several indicators found in the earlier studies: age of first drink, total quantity consumed and percent not smoking. For example, although the percentage of Alberta teenage drinkers had declined steadily from 55% in 1981 to 43% in 1987, the prevalence of drinking had dropped much faster in Manitoba between 1986 to 1987. Similarly, data on the age at which teens started drinking and the total quantity of alcohol consumed showed that Alberta teens were starting to drink at younger ages than their Manitoba counterparts. It was concluded that, although there was still significant awareness of the campaigns among Alberta teens and their parents, there was a rapidly declining awareness of key program ideas. It was suggested that the withdrawal of radio and television commercials in 1986 (in order to focus attention on Zoot Capri) was largely responsible for the negative findings. It was also suggested that the electronic mass media may be necessary, in addition to print media, to focus and reinforce AADAC's prevention goals.

The results of these Canadian studies of mass media campaigns are generally consistent with those cited in the international literature. Whereas mass media campaigns may influence knowledge about alcohol and other drugs, and awareness of related issues, the campaigns are unlikely to create long-standing behavioral change by themselves. These campaigns seem to have the greatest impact in areas that are already salient in the minds of the target audience (e.g., drinking and driving). In addition, they are probably best considered as one element of a comprehensive health promotion strategy that may help create an environment to enhance the effectiveness of other program strategies (e.g., alcohol control policies).

Family-Based Prevention Programs

Family-based prevention programs represent another alternative within the spectrum of alcohol and other drug health promotion programs. Some family-based programs aim to change parents' knowledge of, and attitudes towards, alcohol and other drugs. Other programs focus on improving parenting skills generally.

Two broad social-psychological frameworks have been especially important in the development of parental education programs. Many programs have been based on the "persuasion approach," whereby information is provided to parents in an attempt to modify beliefs and attitudes. Parents are also encouraged to use normative pressure to modify the self-concept of children. By influencing either the attitude or the normative component, parents are thought to influence behaviour in their children.

The second approach is based on "behavioral" or "social learning" theory. This approach assumes that behaviour can be changed through positive and negative reinforcement. It also relies heavily on modelling or imitation. Parental education programs that rest on this approach are based on the belief that a child's behaviour can be shaped through the judicious use of reward and punishment, and by having parents serve as positive role models for their children.

While there is a fair amount of research on these two approaches to prevention, there is very little research on the effectiveness of parenting programs based on either of them. Parental education programs can be divided into those that try to teach parents to deal more effectively with their children without focusing on specific problem behaviours, and those that focus specifically on alcohol and other drugs. A review of parental education programs published by Health and Welfare Canada (1984) identified 12 of the former and 10 of the latter. Of the 22 programs, only 6 had any kind of formal evaluation. Moskowitz (1989) reviewed two studies of family-oriented educational programs being delivered to parents of normal children, which focused on preventing adolescent alcohol or other drug problems. One of the studies was a parental intervention program implemented as one component of a school-based education program (Gersick et al., cited by Moskowitz 1989). Parents received 12 hours of information and training in decision-making, communication skills, adolescent development, and alcohol and other drug use. Compared to a control group, participants made some short-term improvements in parenting skills. However, recruitment of parents and drop-out from the program were cited as major problems.

The second study reviewed by Moskowitz was conducted in Ontario by Shain et al. (1980). They evaluated a 20-hour program modelled after Parent Effectiveness Training. This program focuses on communication and problem-solving skills. The program tried to develop family conditions under which children would make more aware decisions. Comparisons were made between two experimental groups and one control group. Results showed that the course was effective in producing short-term, positive changes in the children's perception of family life, as well as the skill level of parents, especially active listening. However, parental skills such as constructive confrontation and problem-solving were associated with children's non-use of alcohol only when parents were abstainers. Children of participants who were drinkers modelled the behaviour of their parents and increased their use of alcohol.

Another Canadian evaluation was that by Albert et al. (1983) of an alcohol education program designed for parents by the U.S. National Council on Alcohol Education. The course was designed for parents not experiencing alcohol problems and sought to help them examine the influence they have on their children's behaviour. The course also tried to help them become responsible role models. It consisted of eight half-hour sessions led by lay facilitators and covered a wide range of topics including the physical effects of alcohol, reasons for drinking, and parental role-modelling. At least one group of up to 16 participants was recruited in six Ontario communities for the study. Data from pre-course and post-course questionnaires showed a significant increase in knowledge of alcohol among participants in the program, relative to the comparison group. There were, however, no significant changes in attitudes towards alcohol, parenting knowledge, or parenting behaviour. There was an unanticipated, negative change in parenting attitudes among program participants that may have resulted from having overconcerned volunteer parents in the experimental group. The values clarification orientation of the program may have reduced this overconcern, manifesting itself as a shift toward less desirable attitudes towards parenting and drinking at the post-test. The suggestion was made that such programs should only be delivered to parents with a demonstrated need for knowledge or attitude change.

An Alberta study reported by Nutter (1984) is another Canadian study evaluating an intervention that, in some respects, represents a family intervention. The evaluation concerned a participatory educational theatre project aimed at parents and teens and designed to improve communication and understanding of each other's perspective. The assumption was made that by improving communication between parents and teens, problems related to alcohol and other drug use could be avoided. The production toured several communities in northern and central Alberta. Audiences were recruited in a variety of ways including personal contacts, posters, brochures and media advertisements. The evaluation data from audience members came from post-performance questionnaires about their reaction to the program and their perception of the most important theme. A one-month follow-up was also undertaken to determine if audience members had discussed the performance and whether they perceived any changes in family communication patterns. Results showed that the audiences reacted very positively to the performance and that it helped them understand the importance of communication. Half of the teens and over 85% of the parents indicated their intention to discuss the play after the performance. Response to the follow-up questionnaires was poor and the sample of respondents was not representative of the original group. These factors and the lack of pre-test data on the initial level of communication in the family precluded any definitive conclusion about the effects of the program on relevant attitudes or communication behaviours.

The evaluations of family-based prevention programs have provided little evidence of long-term effects on alcohol and other drug use among the children. Some results for parents are positive with improvements noted in parental confidence, self-esteem, knowledge and attitudes. However, the extent to which parents manifest changes in their behaviour at home has not been investigated. The results for children are less positive with either negligible behavioral changes or, in some cases, increased levels of substance use being found. In addition, family prevention programs have had problems recruiting and maintaining parental participation.

It has been suggested that the effectiveness of parental education programs could be enhanced by taking into consideration the ages of the children and their stages of development (Health and Welfare Canada 1984). Rather than promoting all programs as being for all parents, parents should be steered towards those programs that are most appropriate for the stage of moral development of their children. Cultural differences, and differences in values and goals, also need to be taken into consideration. If family-based programs are to continue as a viable option for health promotion, different kinds of programs may have to be developed for different social classes and ethnic groups. Although family-based prevention programs may be used to augment other programs, such as school-based prevention programs, the objectives of the programs need to be clearly stated and outcomes evaluated in terms of these objectives. There is currently insufficient evidence to conclude that they contribute to prevention efforts or to warrant choosing one type of program over another.

Community Programs

In community-based health promotion programs, the whole community is targeted. A "community" may be defined in many different ways such as geographically, culturally or organizationally (Perry 1986; Pederson et al. 1990). Rothman (1979) notes that community-wide interventions can orient their efforts three different ways: community development (promoting community participation to solve problems), social planning (solving particular problem issues), and social action (supporting disadvantaged groups). In practice, these models often overlap. There is also considerable variation in the scope of programs often discussed under the general rubric of "comm-unity-based intervention." The less sophisticated programs use variants of other health promotion strategies (e.g., mass media) but implement them within a specific community setting and with community consultation as a secondary aspect of program delivery. Such programs rely heavily on the knowledge/attitude/behaviour model as the underlying rationale for behavioral change. The more sophisticated community interventions are multifaceted and highly integrated, including such components as community development, community education, mass media, discussion groups, one-on-one interventions, workshops, policy changes and environmental design. Such comprehensive programs draw on a variety of theoretical models of individual health behaviour (e.g,. social learning theory, persuasion/communication theory). They may also follow comprehensive models for planning community interventions (e.g., Green et al. 1980). Finally, the broadest approach may focus on the total environmental context of the community as in the World Health Organization (WHO) and Canadian "Healthy Cities" Project (Ashton et al. 1986; Hancock 1987).

Although there has been a keen interest in community-based health promotion programs, few such programs have been conducted or evaluated that focus specifically on alcohol or other drugs. The majority of these community prevention programs have had a broad health promotion focus, with particular emphasis on reducing risk factors for cardiovascular disease. The best known examples are the Stanford Three Community Study, the Stanford Five Community Study, the Minnesota Heart Health Program, the Pawtucket Experiment and North Karelia, Finland (see Shea and Basch (1990) for an overview of these programs). These studies are often cited as providing evidence of program effectiveness (e.g., McAlister et al. 1982). However, despite the quality and comprehensiveness of the implementation of some of these programs, the evaluation data obtained to date have not been positive in all respects. For example, in the North Karelia study, mixed results may have been due to the way the evaluation was designed (Klos and Rosenstock 1982) and the results of this study have been hotly debated (Solomen 1987; McCormick and Strabanek 1988). In the Stanford Three Community Study, many of the effects of the community intervention were small, unless the participants were at high risk and also received intensive education and training with in-home counselling (Farquahar et al. 1977). Harris (1985) discussed the methodological issues in this community intervention and suggests that the study may have been biased toward finding positive effects.

Some health promotion programs for alcohol problems have included community organization and participation as an adjunct to mass media campaigns. One of the first such programs was known as the California Prevention Demonstration or "Winners Campaign," and was evaluated by Wallack and Barrows (1982-83). The program sought to change attitudes and drinking behaviour in the community. The evaluation found no evidence of program effectiveness.

The Community Action Project in New Zealand, discussed previously in the section on mass media campaigns, also included a community organization component. This project attempted to influence support for alcohol control policies concerning availability and advertising as well as the drinking behaviour of males in the community (Casswell and Gilmore 1989; Casswell and Stewart 1989). The results suggested that the community organization strategy, in combination with the mass media component, attenuated a liberalization in public attitudes toward alcohol availability and advertising that had occurred in the comparison communities. The process evaluation indicated that community organization strategies encountered resistance from some sectors of the community to the public health perspective on alcohol problems, as well as considerable support from several community organizations and the media.

Between 1982 and 1986, a comprehensive community-wide program for the prevention of alcohol-related problems was implemented in San Francisco (Wallack 1984-85). The project included three major components: research, community education and community planning. Wittman (1990) summarized the history and results of the project and gave it a mixed review. A comprehensive planning group that was formed during the project was successful in blocking a significant change in the availability of alcohol (beer and wine to be sold in local gas stations). However, most of the initiatives that were attempted failed to materialize into significant program or policy changes.

Another California community project hoped to build on the experience gained in the San Francisco prevention project (Shane and Cherry 1987). Initiated by a drug task force of a local school board, the "Castro Valley Project" mobilized the community to define and assess their local alcohol problems. Unlike the program in San Francisco, this project was well supported by the community and successful in getting several prevention initiatives implemented (Wittman 1990). One of the reasons cited for the project's success was the strong emphasis on communications and the use of the media. Data are not available as to whether the project and the subsequent prevention initiatives have translated into a change in alcohol or other drug use or related problems in the community.

A community-based program aimed at adolescents and their parents in Kansas City and Indianapolis is still in progress and has shown some positive results (Pentz et al. 1990). The intervention consists of five components: school health education, parental and family intervention, community organization, policy change, and mass media. The first four components are introduced at a rate of one per year, while mass media is used throughout all the years of the project. Over 32,500 adolescents are assessed annually, with data also being gathered from community and school leaders, and parents. Results from the first three years in Kansas City communities indicate that the intervention group had one-half the net increase in the prevalence rate of cigarettes, alcohol and marijuana use compared to the control groups (Pentz, Dwyer et al. 1989; Pentz, Johnson et al. 1989). Compared to controls, parents of adolescents in the program group were also significantly more likely to engage in prevention practices and health behaviours (e.g., aerobic exercise), and were less likely to have used alcohol in the last week (Pentz, Johnson et al. 1989).

Recently, a symposium was held in Scarborough, Ontario, and summarized the international experiences with community action projects for the prevention of alcohol and other drug problems (Giesbrecht et al. 1990). Several Canadian studies were included in this symposium, although the comprehensiveness of the community-based approach in these projects varied considerably. Some of these evaluations have been included in other sections of this report (e.g., Caverson et al. (1990) in mass media campaigns, and Gliksman et al. (1989) in university/college programs). However, two additional projects are noteworthy.

A program in Thunder Bay, Ontario, involved the development and adoption of a policy regulating the licensing of alcohol in municipally owned parks and recreation facilities. An extensive marketing campaign involving, for example, news items, public service announcements, paid advertisements, pamphlets and posters was also implemented to influence people to voluntarily comply with the regulations in the policy (see Douglas (1990) for an overview of the project). The results of the evaluation showed that the campaign increased the intention of the residents to comply with the policy. In addition, compared to a comparison community there were significant changes in residents' attitudes toward legal controls on drinking, tolerance of underage drinking, and support for the use of alcohol in recreational facilities (Gliksman et al. 1990).

Giesbrecht et al. (1990) report on a community intervention in a small town in Southern Ontario. The major research objective of the program was to determine if the overall distribution of alcohol consumption in the community could be influenced by modifying the drinking habits of a significant number of heavy drinkers through a one-on-one educational and counselling program. Other aspects of the program sought to stimulate additional program and policy initiatives through community mobilization and organization. The results of the study showed that the alcohol consumption of participants in the counselling program was significantly reduced. In addition, the project drew considerable attention from the local media and stimulated an interest in alcohol problems among members of the local social service and health committees. The study failed, however, to demonstrate a drop in the overall amount of alcohol sold within the community or a significant shift in the distribution of alcohol consumption in the population. The process evaluation of the program highlighted significant resistance to the program in the community and the ways in which some of this resistance was overcome.

Evaluation of these community-based prevention programs has generally produced results similar to those for educational programs: evidence of knowledge and attitude, and perhaps short-term behavioral change. Future studies will be required to document any major, long-term behavioral change associated with some of the projects currently under way such as the Midwestern Prevention Project (Pentz et al. 1990). As discussed previously with school educational programs, some researchers (e.g., Moskowitz 1989) have compared alcohol and other drug abuse to cigarette smoking and argue that just as changes in societal norms and values regarding smoking have contributed to the efficacy of smoking prevention and cessation programs, so will similar changes in norms and values regarding alcohol and other drugs be required to improve the efficacy of alcohol and other drug prevention programs. However, the best way to influence community norms and values is still to be determined. A multifaceted, community-wide approach, including educational, mass media, and environmental strategies over a period of many years has the potential to have such an impact.

The increased emphasis being placed on developing a "systems perspective" on alcohol problems has given impetus to the community-based approach (see Wallack (1984-85) and Holder and Wallack (1986) for discussion). In this perspective, drinking, other drug use and their consequences must be seen as part of a larger system or network of variables that affect each other. The focus cannot be solely on the individual; the family, the community, and social, economic, legal, political, cultural, and physical factors must also be taken into consideration. We still know relatively little about the community-based approach to the prevention of alcohol and other drug problems, and additional studies are needed concerning their implementation and effectiveness. We are also just beginning to explore the issues and problems that arise in the evaluation of community-based interventions (e.g., Goodstadt 1990).

Server Intervention Programs

Over the past 15 years, it has become increasingly common for individuals to be sued for the conduct of their intoxicated patrons, guests or colleagues. While criminal law imposes sanctions on drunk drivers, it does not penalize the people who create the drinking environments and serve the alcohol involved in drinking and driving. By focusing on the situation that leads to excessive drinking, civil law and server training represent a new and potentially important approach to the prevention of impaired driving and other problems associated with intoxication. In the past five years, hospitality organizations, government agencies, and alcohol producers have endorsed or developed server training programs. A number of states in the U.S. and the provincial governments of Ontario and British Columbia are instituting mandatory training programs for all serving staff in licensed establishments. At the federal level, the Health Promotion Directorate of Health and Welfare Canada, with support from the National Steering Committee on Impaired Driving, supported a national conference on server training in March, 1989.

Server intervention is an environmental approach to prevention in that it attempts to alter the environment of licensed establishments. The objective is to create a safer drinking environment via a set of strategies designed to reduce the risk of patrons becoming intoxicated and harming themselves and/or others. Server intervention involves training servers in responsible practices (e.g., recognizing intoxication and cutting off service to those who are becoming intoxicated), promoting non-alcoholic drinks, the establishment of alternate transportation services (including designated driver programs in which non-drinking drivers are served free or at a reduced price) and awareness of liability issues for serving establishments.

Preliminary evidence from the U.S. and Canada indicates that server training programs are effective in reducing intoxication. Four evaluation studies have been conducted to date —three in the U.S. and one in Canada. The first evaluation of a server training program was of a comprehensive alcohol problem prevention program at a U.S. Navy service bar in San Diego (Saltz 1985; 1986; 1987). Results showed a significant reduction in the rate of consumption, and the likelihood of a customer's being intoxicated was cut in half. There was no reduction in overall alcohol consumption by patrons, thus not affecting revenues. However, the comprehensiveness of the program (18 hours of training plus other supporting management policies) and the closed nature of a military base preclude generalizing these findings to other bars and taverns.

Another study assessed the impact of the "TIPS" program (Training for Intervention Procedures by Servers) in two bars in a rural university town (Russ and Geller 1987; Geller et al. 1987). Training involved approximately six hours of videotaped vignettes, leader-facilitated discussions, and server role-play segments. Using actors posing as patrons, it was found that trained servers were less likely to serve patrons to the point of intoxication or beyond, and that the amount of gratuities did not suffer as a result.

The third American study, conducted by the U.S. National Highway Safety Administration, evaluated its "TEAM" (Techniques of Effective Alcohol Management) program in seven National Basketball Association arenas (McKnight 1986; Vevega 1986). The program was effective in helping develop policies aimed at preventing intoxication and alcohol problems in the arenas. Data on sales, collected from only two arenas, indicated lower overall levels of beer consumption, but higher sales of food and non-alcoholic beverages. Attendance also increased.

The only Canadian evaluation of a server intervention program was conducted in Thunder Bay, Ontario, in 1988 (Gliksman and Single 1988) using a pre-test and post-test design. Observations were collected in eight taverns before and after the serving staff in four of the taverns were given the server training course offered by the Addiction Research Foundation. Professional actors posing as patrons enacted seven "scenarios" involving behaviours covered in the training course such as ordering doubles, frequent ordering of drinks, drinking to intoxication and arriving intoxicated. The study found significant positive changes in knowledge and attitudes by the trained serving staff. Most importantly, the observation of their reactions to the actors' behaviour revealed significant changes in dealing with patrons who were intoxicated, troublesome, seeking an excessive number of drinks, or apparently under age. After taking the course, servers were much more likely to intercede to prevent intoxication and to properly manage under age or intoxicated patrons.

The results of the Thunder Bay evaluation are very encouraging. It should be noted, however, that only short-term effects (i.e., within one month) were assessed. Further studies are required to assess the benefits of server training programs over longer periods of time. The data that are available, however, suggest that server intervention programs can make an important contribution to the prevention of alcohol problems, especially drinking and driving. Additional programs of this nature would certainly be supported by the general public, since 82% of the Canadian adult population supports increased efforts to prevent the serving of intoxicated persons (Health and Welfare Canada 1990).

Alcohol Control Policies

Governments adopt laws and regulations designed to influence alcohol and other drug consumption and to prevent related problems. The research evaluating policies that focus on controlling alcohol availability has consisted mainly of quasi-experimental and econometric studies. These studies have assessed the effects of availability on alcohol consumption and two types of alcohol-related problems, liver cirrhosis and motor vehicle casualties. Policies controlling alcohol availability can be categorized in terms of physical, economic, and social availability (Moskowitz 1989) and this format is adopted for the present review.

It is difficult to separate Canadian evaluation studies of the effects of alcohol control policies from the broader international literature. The Canadian studies are closely interwoven into this literature due to the extensive and pioneering work of Canadian-based researchers such as deLint, Schmidt and Popham (delint and Schmidt 1968; Schmidt and Popham 1978), Whitehead (1975), Smart (1980) and Single (1990)) on the distribution of consumption approach to the prevention of alcohol problems. This approach seeks to control heavy drinking and its consequences by reducing the average level of alcohol consumption in society through controls on alcohol outlets, price, drinking age, etc. The extensive contribution of Canadian evaluation studies in this area is acknowledged at the outset of this review, and included within the context of the broader international literature.

Policies Controlling the Physical Availability of Alcohol

Moskowitz (1989) identified various dimensions of physical availability, including the form and size of alcoholic beverage containers; the concentration of ethanol in the beverages; the hours of the day and days of the week that beverages can be sold; the location, number and density of retail outlets that sell alcoholic beverages; whether alcohol is sold for off-premise or on-premise use; what other products or other activities accompany alcohol sales; and who is legitimately allowed to drink alcoholic beverages (minimum drinking age, non-intoxicated persons) or sell them. Several recent reviews of this literature have been conducted including that by Single et al. (1989) in a paper commissioned by Health and Welfare Canada.

Although the evidence is limited, controls on hours of operation of alcohol outlets have been found to be related to consumption patterns and alcohol problems in a number of settings. Popham (1982) found arrests for public drunkenness to be correlated with hours of tavern operation in Toronto. A study by Ollson and Wikstron (1982) in Sweden of the effect of Saturday outlet closures found that there was an overall decline in sales and in public drunkenness; a Saturday and Sunday decline in public disturbances and crimes of violence; and a 30% to 46% decline in domestic violence on Saturdays. Smith (1986) compared 72 men who were patrons in hotels with 6:00 a.m. or 7:00 a.m. openings with a control group of 87 men who were interviewed in nearby hotels with 10:00 a.m. openings. The two groups had very similar biographical characteristics, yet the men in the early-opening group consumed significantly more alcohol, had more drinking sessions, spent more time drinking, and had significantly higher scores on the Short Michigan Alcoholism Screening Test. It was concluded that the early opening was facilitating problem drinking. Several other studies in Australia found increases in alcohol-related traffic accidents to be associated with increases in availability (Smith 1978; 1980; 1986).

There is relatively little data concerning the impact of either extending or contracting the days and hours when alcohol is normally available for sale. Single et al. (1989) noted several reasons for the lack of evidence. First, changes to permitted hours and days of operation are rarely subjected to systematic evaluation. Second, changes in the permitted hours and days of operation often occur within the context of widespread changes in control regulations, making it extremely difficult to determine the impact of extended hours in and of itself. Finally, the lack of attention to temporal variables is not restricted to availability studies; it is typical of most epidemiological research on alcohol.

In terms of the density of outlets, it should be pointed out that complete prohibition on the sale of alcohol is associated with very low rates of alcohol consumption and alcohol problems (Popham 1956). With regard to less dramatic differences in the density of alcohol outlets, the evidence suggests a positive relationship between problem indicators and the number of outlets for the sale of alcohol. Using structural equation modelling, Rush et al. (1986a), and Gliksman and Rush (1986) investigated the relationship between alcohol availability (as measured by the number of on-premise and off-premise outlets per 1,000 adults), consumption, and alcohol-related morbidity and mortality using data from Ontario's 49 counties. The findings were consistent and typical of the results from other studies. There was a high, positive correlation between retail availability of alcohol and per capita consumption of alcohol, and between consumption and the level of alcohol-related morbidity. There was also a strong, indirect relationship between consumption and alcohol-related mortality, mediated by alcohol-related morbidity. Consumption rates were much higher and problem rates (as measured by cirrhosis mortality and morbidity, and traffic mortality) were somewhat higher in those counties with a higher than average density of outlets. The authors concluded that policies restricting the retail availability of alcohol will probably reduce per capita consumption, and alcohol-related morbidity and mortality.

The reviews of this literature all reach the same basic conclusion (Smith 1983; Macdonald and Whitehead 1983; Farrell 1985). As stated by Macdonald and Whitehead, "(t)he weight of evidence, especially when one takes into account the quality of the studies, is on the side of the availability of outlets accounting for some of the variance in the extent of alcohol consumption" (1983:482). However, the relationship between density of outlets and alcohol consumption tends to be greater for off-premise outlets than it is for on-premise outlets. It should be noted that the causal direction regarding the relationship between density of outlets and alcohol consumption is also not clear. It is highly likely that outlet density and alcohol consumption mutually influence one another. Also, given the nature of the research on the relationship between density of outlets and consumption, the possibility of alternative interpretations always remains. For instance, both outlet density and consumption are likely to be affected by the socioeconomic composition of the community, such as average disposable income. It is difficult to adequately control for such confounding factors in the alternative research designs that can be employed in this area of research.

Another aspect of physical availability that has received attention in Canada is the availability of alcohol in corner stores. A study of the impact of introducing limited wine sales in grocery stores in Quebec revealed no significant impact on wine sales or total alcohol sales (Smart 1986). Proposed reasons for the lack of impact included depressed economic circumstances, the relative unpopularity of wine compared to other beverages, and the long-term trend toward lower alcohol consumption throughout Canada. Macdonald (1986) assessed the impact of increased availability of wine in grocery stores on consumption in four states where a policy change to allow this option had recently taken place. During the years after the policy change in three of the four states, wine consumption was found to be significantly greater than one would have predicted from the trend in the years prior to change.

The findings regarding the impact of the legal drinking age are relatively unequivocal. The lower the drinking age, the lower the age at which adolescents first use alcohol, the higher the consumption of alcohol, and the higher the incidence of alcohol-related problems, including alcohol-related car accidents among teenagers. Several studies have been done in Canada, the U.S. and Australia concerning the impact of changes in the legal drinking age. Smart (1977) compared alcohol sales in 25 American states that reduced their drinking ages with adjacent states that did not. In most of the states that lowered their legal drinking age, beer and liquor sales increased for the year of the change and the year after. Long-term data were not analyzed. An examination of Canadian data revealed that a lowering of the drinking age resulted in a substantial increase in youthful drinking, particularly on-premise drinking (Smart and Goodstadt 1977). Increases in alcohol-related traffic accidents were found among 15- to 17-year olds, as well as 18- to 20-year-olds. When the drinking age in Ontario was lowered from 21 to 18 in 1971, there was an increase in drinking problems, especially a sharp rise in teenage drinking and driving accidents. As a consequence, it was raised to 19 in 1979 (Single et al. 1981).

There is far less evidence as to whether raising the drinking age reduces consumption. Massachusetts raised its legal drinking age from 18 to 20 in 1979. Pre- and post-law comparisons between survey data and fatal accident statistics suggest that raising the drinking age had minimal effects on the drinking behaviour of teenagers. What did change significantly was where alcohol was obtained and where it was consumed (Smith et al. 1984). A Canadian study by Johnson et al. (cited in Johnson et al. 1990) suggested that, on average, consumption would fall by 3% for every year of increase in drinking age. An increase in the legal drinking age in Ontario from 18 to 19 showed a minimal effect, especially for regular drinkers (Vingilis and Smart 1981). However, the effects, although small, tended to be positive. In general, while researchers have found that increasing the drinking age is sometimes associated with decreased rates of alcohol-related traffic injuries and fatalities among teenagers, the effects have generally been found to be minimal (Wagenaar 1986; Wagenaar and Maybee 1986).

The greater impact of lowering the drinking age may be due to the fact that reductions usually covered three years (21-18), while increases usually were of one or two years (18-19 or 18-20) (Vingilis and Smart 1981). Most of the studies of the impact of the minimum drinking age have looked only at males. There is a shortage of data on the impact of such legislation on female drivers, and research in this area should be encouraged. Given that females are generally less likely to break laws than males, such legislation may have a greater impact on them.

The data suggest, therefore, that controlling the physical availability of alcohol is one important component of a comprehensive health promotion strategy. Limiting the hours of availability, as well as the number and density of off-premise and on-premise outlets, to a greater degree than lowering the legal drinking age are all policies which contribute to the prevention of alcohol problems.

These efforts at controlling the physical availability of alcohol have widespread public support in Canada. Based on the results of the National Alcohol and Drug Survey (Eliany et al. 1990), 70% of the adult Canadian population believes that the hours of beer and liquor store operations should be kept the same, while 7% believe they should be increased and 17% believe they should be reduced. In addition, 74% of the population believe that alcohol should not be sold in corner stores. Finally, 50% of the population feel that the legal drinking age should be increased, while 45% believe it should be kept the same, and only 3% believe it should be decreased.

Policies Controlling the Economic Availability of Alcohol

Economic availability is concerned with the real price of alcoholic beverages in relation to disposable income and the cost of other beverages. The cost of alcohol varies by beverage type (beer, wine or liquor), by brand, and by type of outlet (on- or off-premise). The price of a single beverage within a particular outlet may even vary according to the time of day (e.g., half-price, happy hours). Research on the relationship between the price of alcoholic beverages and alcohol consumption often focuses on the "elasticity" of the product.[4] However, the degree of elasticity of alcohol varies over time, and depends also on the extent of the price changes and the type of beverage. Liquor has been found to be particularly elastic (Ornstein and Levy 1983). Cook (1981), and Cook and Tauchen (1982) found that relatively small increases in the price of distilled spirits due to an increase in state taxes led to a significant reduction in consumption. From a methodological point of view, Cook's research is among the strongest studies on this topic. His quasi-experimental study compared the consumption of spirits before and after tax increases in 39 states to consumption within several states that had no tax increases. The states with the tax increases had a significant decrease in consumption, as well as a decline in automobile and liver cirrhosis fatalities.

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[4] The responsiveness of consumers to price changes is measured by price elasticity, which is defined as the ratio of the percentage change in quantity purchased to the percentage change in price. If the percentage change in price is less than the percentage change in the quantity that buyers want to purchase, the demand elasticity is greater than one and considered "elastic" (e.g., price rises 10% and quantity purchased falls by 20% equals a demand elasticity of -20.0/10.0 or -2.0). If the percentage change in price exceeds the per centage change in quantity purchased, the demand elasticity is less than one or inelastic (e.g., price rises 10% and quantity purchased falls by 5% equals a demand elasticity of -5/10 = -.5).

Ornstein and Levy (1983), in a review of econometric studies, suggest that for spirits consumption in the U.S., most studies have found a price-elasticity of around -1.5. They also concluded that the consumption of wine was not as robustly related to price, especially among youth. However, studies of the general population suggest wine consumption increases after a price drop. The evidence for the price sensitivity of beer was weak. While consumption of beer does respond to a change in price, for a given percentage change in price, there is a less-than-proportionate change in the quantity of beer purchased. Thus, it is "price-inelastic." Ornstein and Levy (1983) estimate a price-elasticity for beer of about -0.3.

A recent paper on taxation and alcohol policy prepared for Health and Welfare Canada by Johnson et al. (1990) includes a review of Canadian studies on price elasticity. They conclude that demand for all three beverages was generally inelastic, with the elasticity of beer being considerably less than for the other two beverages. They estimate that the short-run elasticity for beer is -0.3, with wine and spirits both having elasticities of about -0.8. Although there appears to have been a decrease in elasticities over time, both in Canadian and foreign studies, consumption still responds to price changes and this remains a viable option for alcohol control policy.

Any changes in consumption-based taxes are reflected in consumer prices. Johnson et al. (1990) estimate that a one dollar increase in the federal excise tax may cause a price increase of more than $2.50. Many researchers measure the potential impact of tax changes through simulation studies, a number of which are reviewed by Johnson et al. (1990). These studies invariably show that increasing taxes and price would result in a decline in consumption as well as a decline in alcohol-related problems such as cirrhosis and traffic fatalities. Cook (1984), analyzed data from 30 "license states" in the U.S. from 1964-1972, and showed that a $1.00 per proof gallon increase in a state's liquor tax would reduce its cirrhosis mortality rate by 1.9% in the short run. If the federal liquor tax were doubled, the cirrhosis mortality rate would drop by about 20% in the first year. A study by Grossman and Saffer (cited in Johnson et al. 1990) estimated that if beer taxes in the U.S. had been indexed to the rate of inflation since 1951 (150% tax increase), the lives of 1,022 youths in the 18- to 20-age group would have been saved between 1975 and 1981, a reduction of 15%.

In both Belgium and Denmark, exceptionally high taxes on spirits led to marked reductions in consumption of this type of alcohol (Bruun et al. 1975). The consumption of fortified wine in Finland was successfully reduced by the introduction of substantial price increases on these products (Makela et al. 1981). In Ontario, provincial wine producers were anxious to dissociate their products from skid-row inebriates in the early 1970s. As a result, the provincial liquor board differentially increased the price of domestic fortified wine, resulting in a shift in consumption away from these products to table wine (Single et al. 1981).

Another way of looking at the impact of price on consumption is to focus on price relative to disposable income. A strike by miners and steelworkers in Sudbury, Ontario, in 1978-1979 produced an overall decline in alcohol consumption for the duration of the strike. Also, the proportion of alcohol sold as beer increased slightly compared to wine and liquor. The data supported the hypothesis that a lowering of disposable income would lower alcohol consumption (Giesbrecht et al. 1982). In a study based on data from 30 American states, the cirrhosis mortality rate was found to increase by 5.5% as a result of a $1,000.00 per capita increase in average income (Cook 1984).

Rush et al. (1986b) investigated the relationship between the availability of alcohol, alcohol consumption and alcohol-related damage over a 28-year period in Ontario and Michigan. There was a significant relationship between per capita consumption and liver cirrhosis mortality rates in both locations, with changes in consumption accounting for 92% and 72% of the variance in cirrhosis death rates, respectively. The relative price of alcohol fell steadily throughout the study period, which was accompanied by a rise in consumption and cirrhosis death rates. The change in relative price accounted for 98% of the variance in consumption and 90% of the variance in cirrhosis death rates in Ontario. In Michigan, the percentages were 76% and 37% respectively.

The promotion of low price, non-alcoholic drinks or low alcohol content alternatives to full strength alcoholic beverages is often included in the agenda of prevention policy and programming (Single et al. 1989). Thus, for example, Section 8(18) of the regulations of the Liquor License Act of Ontario requires that all licensed premises must sell tea, coffee, milk, and a variety of other non-alcoholic beverages at a reasonable price. Recent guidelines stipulate that a "reasonable price" means that it must be lower in price than the cheapest alcoholic drink. The promotion of non-alcoholic and low alcohol content beverages is also a common aspect of prevention programs such as server intervention programs.

Despite its inclusion in policy and program initiatives, there is little research designed to assess the impact of offering alternative beverages at a low price. The studies that do exist focus on low-alcohol, rather than no-alcohol, beverages (Single et al. 1989). The promotion of alternative beverages has been an element in broader prevention programs (e.g., the Campus Alcohol Policy and Education Program in Ontario), but it is impossible to distinguish the impact of increasing the availability of alternative beverages from the other elements of these prevention programs. However, it is reasonable to assume that if the consumption of both alcoholic and non-alcoholic beverages responds to changes in price, then ensuring the availability of alternative beverages at non-inflated prices is highly likely to influence some consumers to use these alternatives as substitutes for alcohol (Single et al. 1989).

The question has been raised whether there is a relationship between home-production, the largest source of unrecorded consumption, and price. As pointed out by Johnson et al. (1990) there is very little data available to help answer this question. An Ontario study in the early 1970s estimated that the consumption of home-made wine was equivalent to 73% of the total alcohol volume of wine sold through retail outlets (Pernanen 1972). Home-brewed beer was the equivalent of only 0.2% of beer sales. Taking these and other factors into account, Single and Giesbrecht (1978) estimated that if the consumption of home-produced alcohol was added to recorded consumption, total consumption would increase by only 6.5%. Unfortunately, no data are available on changes in home-production in response to changes in price. However, Johnson et al. (1990) suggests that given the relatively small scale of home production, it is unlikely that small changes in taxes (and therefore price) will cause a significant change in home production. A large increase in taxes, however, could have a significant effect, especially for wine.

The general public resists increases in government taxes. However, the data suggest that increases in alcohol and tobacco taxes receive a higher level of approval than other levies such as property taxes, income taxes and general sales taxes (Johnson et al. 1990). Data from the National Alcohol and Drug Survey (Health and Welfare Canada 1990) show that 46% of the Canadian adult population believe taxes on alcohol should stay the same, 27% believe they should be increased, and 18% believe they should be reduced. More women than men felt they should be increased, while more men than women felt they should be reduced. A series of Canadian Gallup polls in 1981 found that approximately one-third of respondents supported a large increase in the price of alcoholic beverages. Greater approval was given to increasing the legal drinking age (62%), banning all spirits advertising (49%), and increasing government advertising on dangers from drinking (66%) (Johnson et al. 1990).

In summary there is strong evidence to indicate a relationship between the price of alcohol, the consumption of alcohol, and alcohol-related problems. Manipulating the price of alcohol is an effective means for the government to control alcohol consumption and its consequences.

Policies Controlling the Social Availability of Alcohol

Social availability is concerned with the promotion of alcoholic beverages at the point of purchase (e.g., signs in bars and liquor stores), within the community and in the mass media. Besides promoting beverages through advertising, the alcoholic beverage industry sponsors recreational and sports activities. Accurate representation of the products (e.g., listing of ingredients, product warning labels) is also considered an aspect of social availability. Misrepresentation of the product is another important consideration; that is, associating drinking with inappropriate activities (e.g., sports and recreational activities, driving) or unrelated characteristics (e.g., sex appeal, high socio-economic status). Media programs may display alcohol misuse with or without the related negative consequences. It may also be used to portray appropriate drinking behaviours.

There has been virtually no research into the impact of special promotions of alcohol. While special promotions have been neglected by researchers, they have been a major concern to lawmakers and regulators, who often impose stringent limitations on promotions by alcohol manufacturers and their agents (Single and Solomon 1988).

Research on the effects of social availability of alcohol on consumption has concentrated on media advertising. Smart (1988a) identifies four types of studies on the impact of advertising on consumption:
1) research on the impact of advertising bans;
2) econometric studies on the impact of changes in advertising expenditures on alcohol consumption;
3) studies on individual exposure to advertising; and
4) experimental research on the effects of advertising.

In studies of alcohol advertising bans, none have found decreases in consumption attributable to the bans. However, the bans have generally been partial or of short duration. British Columbia banned the advertising of alcoholic beverages and tobacco from September 1, 1971 to October 31, 1972. To assess the effects of the ban, Ontario was chosen as a comparison site. Smart and Cutler (1976) analyzed yearly and monthly consumption of beer, wine and spirits and found no major effects of the ban on consumption. They suggest several reasons for the ban's lack of success: relatively short duration; lack of popular support; lack of support from the mass media; the fact that it was not total, since national and out-of-province advertisements could not be stopped; and uncertainty about the future of the ban with a change in government. The authors anticipated that many of these difficulties would be encountered in any advertising ban on alcohol in the Western world and suggest, therefore, that banning advertising may not be one of the most effective ways of preventing alcohol problems.

Another Canadian study that suggests the limited impact of advertising was conducted in Saskatchewan (Makowsky and Whitehead, in press). A 58-year ban on alcoholic beverage advertising in Saskatchewan was lifted in 1983. Data on the monthly sales of beer, wine and spirits were examined for the years 1981 to 1987. The main finding was that there was no impact from the introduction of alcohol advertising on total alcohol sales, suggesting that advertising does not affect the consumption of alcohol.

Most of the media studies evaluate the effects of marginal changes in advertising expenditure on total consumption. There are studies examining the effects of brand-specific advertising on overall alcohol consumption. In general, they have not been able to detect any effect. Studies exposing subjects to advertising on a single occasion also tend not to show any effect upon later consumption (Kohn and Smart 1984; Kohn et al. 1984). Some studies conducted on youth suggest that their consumption level is more inclined to be influenced by advertising than that of the general population. However, a study of the effects of exposure to alcoholic beverage advertising on teenagers found a uniformly small correlation between advertising exposure and alcohol use and abuse (Strickland 1983). Only 1% of the variance in alcohol consumption could be uniquely accounted for by advertising exposure. Only 0.5% of the variance in behavioral problems was associated with advertising exposure, and nearly all of that effect was a function of advertising's effect on consumption. The proportion of respondents' friends who drink was found to be the factor most strongly related to alcohol consumption and abuse. The inability of studies to find an effect of marginal changes in advertising expenditure on consumption suggests that the effect, if any, is minimal. However, studies on the effects of marginal changes in advertising do not provide a basis for predicting the effects on consumption of all advertising.

The large volume of research on the advertising of alcoholic beverages has produced inconclusive results (Single et al. 1989). There is not sufficient grounds for claiming that advertising either does or does not affect alcohol consumption. More research is certainly needed. As noted by Smart (1988a), virtually all the research on the impact of advertising suffers from certain key limitations. First, since advertising is only one of many factors that may influence alcohol consumption, even if it did have an impact, its influence would likely be small relative to other factors such as price and disposable income. A relatively small advertising effect could easily be masked by these confounding influences. Second, advertising is usually targeted at particular groups, whereas the research on its effects is not. Thus, the impact of advertising on youth or other target groups might fail to appear in the research findings. Finally, research has looked only at the very short-term impacts of advertising. It is possible that the most important consequences of advertising are cumulative effects which can only be detected using long-term research designs.

Given the lack of evidence for the effectiveness of advertising, the amount of money invested in it, and by the breweries in particular, is striking. It has been estimated that Canadian breweries spent approximately $375 million in 1988 on all promotional efforts, with $104 million being spent on purchased media (McMullen and Associates 1989). Distilleries and wineries are estimated to spend $60 million and $10 million respectively. Of the $104 million spent on purchased media by the breweries in 1988, over two-thirds was spent on television; most of the rest was spent on radio. In July 1988, Canadian television carried an average of 1.6 alcohol ads per hour, making up 6% of all television advertising in that month (Erin Research 1989). Legislation prohibiting the broadcast advertising of spirits has led distillers to rely on print as the primary avenue for promotion. They spent about two-thirds of the $28 million spent on purchased media in 1988 on print, especially magazines. Although wineries spend far less than breweries, they also spend the highest proportion of their promotion budget on television advertising. Sponsorship of sports and entertainment are also very important promotional tools.

Given the enormous amount of money invested in advertising and other promotional tools, significant efforts are made by alcohol producers, and the breweries in particular, to track consumers' corporate and brand awareness, advertising recall, corporate image, and the trial and use of products. However, as pointed out by McMullen and Associates (1989), the difficulty is in linking these data to sales volume and market share. He suggests that alcohol producers are taking a "leap of faith" in their expenditure on promotion. While they may suspect that some expenditures are wasted, as long as the competition is putting money into promotion they cannot afford not to do so.

The alcohol industry has been criticized for targeting youth in its promotional campaigns (Erin Research 1989; McMullen and Associates 1989). To counter adverse public opinion about drinking and driving and the targeting of youth in their advertisements, the alcohol industry, especially the breweries, has increasingly become involved in promoting "responsible drinking." For example, Labatt, in conjunction with Ford Motor Co., recently introduced a defensive driving program to be held across the country. Molson supported an interactive video designed to promote responsible decision-making on the use of alcohol. However, the extent to which such efforts are manifestations of genuine corporate responsibility rather than a desire to counter pressure for increased restrictions on the promotion of alcoholic beverages is a matter of opinion (McMullen and Associates 1989). In addition, these programs have not been evaluated so their usefulness remains undetermined.

The warning messages on alcoholic beverages are the final aspect of policies controlling social availability to be discussed here. For a more detailed review of the available literature the reader is referred to Single et al. (1989). As of November 18, 1989, all alcoholic beverages sold in the U.S. must have a specified warning message. Given the recency of this requirement and the fact that Canada does not have such a policy, it is not surprising that there are virtually no empirical studies specifically on the impact of alcohol warning labels. Much of the existing literature on alcohol warning labels consists of reports and reactions to legislative action (Single et al. 1989). The American government commissioned a survey of public opinion regarding warning labels on alcoholic beverages and found strong support. Data from the National Alcohol and Drug Survey (Health and Welfare Canada 1990) showed strong public support for warning labels in Canada; 74% of the Canadian adult population believed that alcoholic beverages should have warning labels.

Engs (1989) used the health belief model to consider whether warning labels are likely to change behaviour. She concluded that warning labels might be effective, when combined into a comprehensive health promotion program, but that a warning approach alone was unlikely to have a major impact on consumption. Smart (1988b) reviewed American studies on the effectiveness of warning messages on other products. He concluded that warning labels on alcoholic beverages could be designed to be effective and that consumption could be reduced by 4% to 10%.

Nearly all the evidence supporting the contention that warning labels can affect behaviour comes from studies on tobacco, foods and licit drugs. A review of the research literature on the effects of health warning labels commissioned by the American government concluded that warning labels can have an impact on consumers if designed to be credible, useful, specific, easy-to-read and prominent. In addition to design features, other factors shown to influence consumer response to warning labels are product familiarity, costs of compliance and social influence, and the severity of potential injury from product use (Single et al. 1989). Given the research findings to date, alcohol warning labels may have a positive impact in reducing alcohol consumption, if they are part of an integrated, systematic approach that includes mutually reinforcing health promotion programs. Evaluation studies will be required to document the contribution that warning labels may make to this comprehensive approach.

Formal Social Control Policies Regulating Behaviour

Societies adopt bodies of laws and policies that regulate the individual's use or possession of alcohol or other drugs. These formal social controls also prohibit individuals from engaging in certain activities such as operating a motor vehicle while consuming alcohol or while under the influence. These laws also define levels of intoxication (per se laws). Typically, such laws also prohibit serving alcohol to minors or intoxicated persons. Despite all of these regulations, little research has been conducted to determine their effectiveness. The studies that have been done have focused primarily on evaluating drinking-driving laws, and have mainly assessed deterrence policies and programs designed to increase the perceived risk of being apprehended and punished for drinking and driving.

The concept of short-term deterrence assumes that people comply with a law to avoid punishment. Three variables are believed to influence the degree of compliance: certainty, severity, and swiftness of punishment. Long-term deterrence is concerned with the internalization of the desired behaviour, based on moral education and habit formation (Moskowitz 1989). Most of the evaluation research has been carried out on policies or programs emphasizing the certainty of punishment in short-term deterrence. The evidence from studies of per se laws indicates that such laws are effective in lowering motor vehicle fatality rates, at least for the short-term. However, these laws appear to need extensive publicity from the media in order to be effective. Increased enforcement of drinking-driving laws is perceived as increasing the certainty of punishment. While the critical level of certainty of punishment at which increased deterrence will occur is unknown, it has been estimated to be as high as 30%. Should this level be reached, no penal system could handle the enormous numbers of offenders that would result (Vingilis 1985). It has been estimated that the chances of being arrested for drinking and driving are as low as 1 in 5000 (Chamberland 1989).

Studies of the effectiveness of enforcement programs have shown mixed results. Some have shown that per se laws and sobriety check points can result in at least short-term reductions in motor vehicle crash rates (Vingilis et al. 1980; U.S. Department of Health and Human Services 1987). To be most effective, the enforcement needs to be coupled with extensive media coverage. In fact, media coverage may be even more important than the extent of road checks or police charging activity. Mercer (1985) evaluated an anti-drinking-and-driving campaign in British Columbia in which drinking-driving roadblocks, increased enforcement, and a mass media "blitz" were used. No changes were found in alcohol-related accidents, self-reported drinking-and-driving, or knowledge of the media blitz. Mercer suggests that the lack of effect was due to inadequate media coverage, due to a newspaper strike at the time of the crackdown. There was no change in perceived likelihood of apprehension.

Even in instances in which short-term effects have been found, once drivers have realized over a period of time that their chances of getting caught are still relatively small, drinking and driving and crash rates generally return to previous levels. The decline in automobile fatalities in Canada following the introduction of per se laws lasted under a year (Carr et al. 1975; Chambers et al. 1976). Other studies have shown no initial decrease in drinking and driving after the certainty of punishment is increased. For example, Ross (1985) found that while using sobriety checkpoints increased the perceived risk of driving while impaired (DWI), the increase was not sufficient to affect reported drinking and driving behaviour. The amount of checkpoint activity that is needed to act as an effective, long-term deterrent is still to be determined.

Only a few evaluation studies have been conducted on policies and programs attempting to increase the severity of punishment and they have provided mixed results. A study of the impact of a new law in Maine that instituted mandatory penalties and civil proceedings for DWI found that single-vehicle, night-time fatal crashes decreased for two years, before returning to pre-law levels (Hingson et al. 1987). There was a decline in casualties prior to implementation of the law, which suggests that publicity about the law, and public disapproval of DWI, were responsible for the effect. The same phenomenon was observed in Massachusetts prior to the implementation of more severe penalties for DWI. Surveys in both states before and after the law showed that there was an increase in the public's belief that drinking and driving would be punished, but few believed that drinking drivers would be apprehended.

It appears that laws providing for severe punishment do not often get implemented because the system of justice mitigates them. Police are often reluctant to press charges if they consider the penalties to be too severe. If charges are laid, cases are often dismissed, and a large proportion of the accused go free. A balance must be achieved between severity and certainty of punishment (Jonah and Wilson 1983).

For drinking and driving laws to be effective, it is essential that governmental and non-governmental agencies at all levels cooperate and coordinate their efforts. For instance, mass media "blitzes" without enforcement to back them up are not likely to work. Laws must be strict and enforceable, and the public must be made aware of the laws and sanctions that apply. Efforts must be geared toward convincing the public that there is a fair chance they will be caught if they drink and drive. If they are caught, they must be punished. Otherwise, the law serves little deterrent value. Police, public health officials, insurance companies, representatives of lobby groups (such as Students Against Drunk Driving and Mothers Against Drunk Driving), and other interested parties should all be involved in efforts to strengthen the impact of legal controls on alcohol use and abuse.

After reviewing the literature on formal social controls for preventing drinking and driving, Moskowitz (1989) concludes that extra-legal factors may be far more important in influencing behaviour than legal factors. Studies suggest that drinking and driving is a function of the individual's usual level of alcohol consumption, attitudes toward drinking and driving laws, and beliefs about the appropriateness of drinking and driving, not the perceived risk of arrest. Moskowitz suggests that the most important contribution of new laws and enforcement crackdowns is to reinforce existing informal social controls that have developed within certain subcultures of society. Thus, formal social controls must be congruent with informal ones and communicate the moral concerns of the community. By doing so, they can supplement and reinforce the development of values and norms that discourage problem drinking.

Because of the difficulty in deterring drinking and driving through the threat of punishment, other efforts have been proposed that make less of a demand on the individual. Environmental approaches to prevention research primarily involve technological changes that reduce the demands of the driving task. They are passive countermeasure approaches that attempt to reduce alcohol-related accidents by making the environment more tolerant of the individual's alcohol-influenced driving behaviour. One example of an environmental safety measure is lighting roads at night to improve drivers' perception. Other safety approaches to highway design include reducing the curvature in roads, eliminating objects near the road, and eliminating intersections. Another safety measure, lights in the rear windows of cars, has been shown to reduce the incidence of rear end collisions by half (Robertson 1983). A number of improvements in the safety standards of automobiles could also ensure that the driver and passengers are protected from fatal or serious injuries. Examples include equipping the vehicle with passive restraints such as airbags and self-fastening seat belts, and other safety devices such as padded dashboards, penetration-resistant windshields, and energy-absorbing steering assemblies. The adoption of many of these environmental measures and safety features faces considerable opposition from both industry and public. Many of these changes are expensive and their potential effect on alcohol- or other drug-related accidents specifically is unknown.

Methodological Issues in the Evaluation of Health Promotion Programs

In the foregoing review of the effectiveness of the various approaches to health promotion in the alcohol and other drug field, little attention was devoted to methodological weaknesses in much of the evaluation research. Within each of the various approaches, there are major methodological issues and problems. For example, the evaluation of school-based programs has been hampered by the lack of control or comparison groups, small sample sizes, high attrition rates, failure to control for confounding variables, lack of long-term follow-up, and inappropriate measurement of key variables. These and other problems such as controlling the exposure to the program have plagued the evaluation of mass media campaigns. With respect to alcohol control policies, the relationships often observed between pricing, other measures of availability and alcohol consumption, rest on some rather tenuous assumptions about the use of data on the sale of alcohol as a valid and unbiased measure of the consumption of alcohol. Even the newer community-wide health promotion programs bring their own unique problems and issues for program evaluation. For example, if programs are truly based on a model of community development and empowerment, program objectives must be free to change on an as-needed basis, thus playing havoc with objective-oriented evaluation designs. Further, these community-wide programs imply a different kind of relationship between program implementors and program evaluators (Goodstadt 1990) and may require a completely different, non-traditional evaluation model based on action research (Lewin 1946) and/or naturalistic inquiry (Guba and Lincoln 1983).

One of the most consistent methodological issues that cuts across almost all the various types of health promotion programs is the need for more documentation of the actual intervention and the process evaluation of its implementation. Although there are some recent, and notable, exceptions (e.g., Casswell and Stewart; 1989), there are few published accounts of program implementation despite the fact that such information is crucial for interpreting outcome data and disseminating effective programs and policies (Moskowitz 1989). As pointed out by Wallack (1980), the question "What happened?" is at least as important as the question "Did it work?" Wallack also suggests that evaluation should go beyond the individual, to look at groups, situations, institutions and communities in order to increase the usefulness of the data for policy-makers.

It is likely that considerable effort is expended in evaluating questions and issues concerning program implementation that is not reflected in published accounts of the study. This may be due in part to the strict page limits on published work in professional periodicals. Such a discrepancy is highlighted somewhat by many of the Canadian studies reviewed here since many of them are unpublished reports with limited circulation. For example, the mix of process and outcome studies in many of the AADAC evaluations is exemplary. Much of the recent volume concerning community-wide health promotion programs (Giesbrecht et al. 1990) came from a symposium devoted to exploring issues around the implementation of these programs. This symposium represents an important attempt to better document and disseminate knowledge about the implementation of programs, and the problems that are encountered in action research in the health promotion area.

In summary, a comprehensive evaluation paradigm is needed for a comprehensive health promotion strategy. This will involve an appropriate mix of process, outcome and economic evaluation strategies, with both qualitative and quantitative methods.

CHAPTER THREE: *EARLY INTERVENTION PROGRAMS*

Early intervention programs represent a second major category of community alcohol and other drug programs. Included in this category are interventions that attempt to identify people who are using alcohol or other drugs and who are just beginning to experience problems related to this use. In addition to identifying these individuals, early intervention programs include strategies directed at alleviating the alcohol- and other drug-related problems and reducing the use of alcohol or other drugs. From a public health perspective, these programs are based on the general principles of secondary prevention and assume that the processes contributing to chronic alcohol or other drug abuse can be interrupted and reversed, if the symptoms and contributing factors are recognized and dealt with in the early stages.

The literature on early intervention usually includes programs for people arrested for impaired driving, programs in the workplace and programs in health care and social service settings. Some programs aimed at special subpopulations at particularly high risk of developing alcohol and other drug problems are also sometimes considered within the context of early intervention. Examples of these subpopulations include children raised in a home with serious substance abuse problems ("children of alcoholics"); children with attention deficit disorder or conduct disorders; youth in Native communities, especially those in remote areas with the high risk of solvent abuse; young people living in disadvantaged social and economic conditions; women who are single mothers living on low income and/or depressed; women who are pregnant (hence the risk of fetal alcohol syndrome); and the elderly who may be at special risk of alcohol or prescription drug problems. As noted in the introduction to this report, it is beyond the scope of this review to adequately assess all the relevant literature for these and many other special subpopulations. This limitation in scope notwithstanding, it can be confidently stated that the search for effective early intervention programs for these populations at risk is still in the formative stages and there is a clear need for more evaluation studies.

The focus of this review of early intervention will be on programs for individuals arrested for drinking and driving, programs for individuals in the workforce, and programs for individuals in contact with the health and social service system. Programs for "high risk" populations are then briefly discussed. Before reviewing this literature, however, one must ask: what has been the experience in Canada with such early intervention programs?

Early Intervention Programs in Canada

Programs for persons arrested for drinking and driving are quite common across the country and typically involve a limited number of sessions with an educational focus. These programs attempt to change knowledge and attitudes related to drinking and driving and reduce the frequency of driving after using excessive amounts of alcohol. Some programs also have more of a counselling than educational focus with somewhat broader objectives concerned with lifestyle, reducing alcohol-related problems and drinking-driving episodes. Individuals convicted of impaired driving may be requested to seek mandatory treatment, and this remains the last vestige of coercive alcohol and other drug treatment in almost all parts of Canada (Rush and Ogborne, in press).

Programs for persons in the workforce are also quite common across the country but the amount of attention given to alcohol and other drugs specifically varies highly variable (Bennett 1978). Health promotion programs based on a broad "wellness" philosophy may include a component related to the use of alcohol and other drugs in an attempt to identify heavy use and related problems. Some examples of this broad approach are comprehensive wellness programs offered by large companies (e.g., O'Loughlin et al. 1988). Employee Assistance Programs (EAPs) in many worksites often provide policies, procedures and resources for dealing with substance abuse problems among the workforce. EAPs, however, typically use a very "broad-brush" approach, whereby these problems would be among the many different types of social, family and personal problems being dealt with. A recent comprehensive survey of EAPs in Ontario found, for example, that over 90% used this broad-brush approach (Macdonald and Dooley 1989). A similar national survey of federally regulated Canadian transportation companies found about 31% of worksites with 100 or more employees had an EAP and that about 78% of these programs provided broad-brush treatment (Macdonald and Dooley 1990). It has been argued that EAP programs may not be particularly effective in identifying problems in the "early stages," since serious problems may have to emerge in the worksite before alcohol abuse is identified and the person becomes involved in the program (Shain and Groeneveld 1980). Finally, some companies have "drug screening programs" to reduce the occurrence of, and hazards associated with, substance use in the workplace. The national survey of the transportation sector showed, for example, that about 20% had some kind of drug screening, and about 15% reported using alcohol testing. Although pre-employment testing was most common (80%), periodic screening with regular medical check-ups was reported by about 45% of the companies (Macdonald and Dooley 1990).

Early intervention programs in social and health care settings are not very common in Canada. In their national overview of treatment in Canada, Rush and Ogborne (in press), noted considerable interest across the country in developing early intervention programs within health care and other settings. The current lack of activity in this area may reflect, in part, the relatively recent conceptual and practical development of such programs (see, for example, Institute of Medicine 1990). Such programs are viewed as having the potential to make a significant contribution to the treatment of alcohol and other drug problems, since research evidence has suggested that treatment is more effective, and probably more cost-effective, if the problems are identified before they become quite serious (e.g., Ogborne 1978).

The role of the family physician and other health care professionals in early intervention programs has recently received a lot of attention in Canada, especially the implications for medical education and training (e.g., Ashley et al. 1990; Brewster et al. 1990). A recent national survey of family physicians found quite low awareness and utilization of the various techniques available for detecting and managing problem drinkers among their patient caseload (Rush et al. 1990). A number of programs and early intervention techniques have been developed and implemented in various settings as part of research projects initiated by the Addiction Research Foundation in Toronto (e.g., Skinner et al. 1986; Sanchez-Craig 1987a; 1987b). The Alberta Alcohol and Drug Abuse Commission (AADAC) has recently disseminated a kit for physicians to influence their detection and management of problem drinkers; the evaluation of this project is summarized below (Brown et al. 1990). AADAC also offers a "Drinking Decisions Program" at one of its treatment centres and this program is aimed at socially stable individuals with less severe alcohol problems (Thompson 1986b).

Finally, although some early intervention programs are aimed at "high risk" populations in the country, no systematic study of their scope or effectiveness has been done. Programs for "children of alcoholics" are available, many linked to treatment facilities with a family-based orientation to service delivery (Sobol 1988). There are specialized early intervention programs for women, one of which was described by Chamberland (1989) in a review of prevention and treatment programs in Quebec. There are also examples of early intervention programs targeted at high risk youth; for example, the "Early Intervention Program" in Ottawa (Royal Ottawa Hospital, undated), and the HYPER program in Halton, Ontario (Marshman 1990).

In summary, across Canada the most common types of early intervention programs are those aimed at persons arrested for impaired driving and, to a lesser extent, people in the workforce. There has been considerable interest in implementing and evaluating early intervention programs in many health care and social service settings, and a few examples have been evaluated. There has, however, been little progress made in getting such programs incorporated on a wide scale into these settings. Examples of early intervention programs for "high risk" subpopulations are also available selectively across the country.

Overview of the International and Canadian Literature

We turn now to a review of international and Canadian studies evaluating early intervention programs, focusing our attention on the following categories of programs:

- programs for impaired drivers
- programs in the workplace
- programs in health and social service settings
- programs for "high risk" populations

Programs for Impaired Drivers

Using education and rehabilitation as alternatives to court-imposed legal sanctions for driving while impaired (DWI) has become increasingly popular in many countries since the 1960s (Makela et al. 1981). DWI offenders are more likely than people in the general population to have alcohol problems (Rosenberg et al. 1972). However, not all offenders are alcohol dependent; it is the multiple offenders who have the more serious alcohol problems (Macdonald and Pederson 1990). Given the range of problem severity involved, detecting problem drinkers through highway enforcement, and subsequently intervening with these individuals, clearly falls within the context of early intervention strategies.

The evaluations in this area are not sufficiently strong methodologically for definitive conclusions to be drawn about program effectiveness (Nichols et al. 1978; Foon 1988). For example, in the review by Nichols et al. (1978) more optimistic results came from the most poorly controlled studies. They also noted that positive outcome was reported most frequently in the participant's knowledge and attitudes, but that fewer than 25% of the studies found reductions in re-arrest for impaired driving. For studies making a distinction between "social" and "problem" drinking, there was some evidence of differential effectiveness. Educational programs were more effective for "social drinkers," who were less likely to become recidivists regardless of the nature of the educational program. On the other hand, "problem drinkers" did not appear to be affected by any type of program.

Well-conducted studies implemented after the review by Nichols et al. (1978) have provided mixed evidence of program effectiveness, and questions remain about the consistency and durability of any positive behavioural outcomes that are observed (Foon 1988). Reis (1983) compared the effects of several educational and counselling programs. In one of his studies, first offenders were randomly assigned to receive a four-session educational program, a home study program or a no-treatment control group. Re-arrest rates were lowest for the two intervention groups during a three-year follow-up, compared to the control group. In a related study (Swenson and Clay 1980), no differences were found between home study and in-class education in reducing recidivism. Another study by Reis (1983) focused on multiple drunken driver offenders and found that while educational counselling and bi-weekly contacts reduced alcohol consumption over a one-year period, this reduction was not maintained beyond the treatment period. McGuire (1978) compared three forms of educational programs, three forms of therapeutic programs and a control condition. The educational programs included a mail-only program, a driver safety school and a discussion group. All three educational and therapeutic approaches had positive effects on traffic safety for light drinkers, but no beneficial effects for heavy drinkers. Brown (1980) compared a conventional didactic drunken driver education course, an education course on controlled drinking, and a no-education control condition. A year after conviction, subjects in both educational groups showed an improvement in their level of overall adjustment compared to the control group. However, subjects in the controlled drinking condition reported lower alcohol consumption and frequency of drinking, and fewer days of uncontrolled drinking than those in the conventional didactic educational program or the control condition.

In summary, Foon (1988) concludes in his recent review that neither educational nor therapeutic programs have provided definitive evidence of sustained behaviour change. In Canada, there have been some evaluations of these programs and overall the results are similar to those reported in the published international literature.

Vingilis et al. (1981) randomly assigned drinking drivers with multiple offenses to either an educational program or a control group. Compared to the control group, the educational group showed significant increases in knowledge and attitude scores between pre- and post-test measures. However, after three and one-half years, no significant differences existed between the educational and control group on traffic safety measures.

Chamberland (1989) reports on a process evaluation of a program in Quebec for drinking drivers who have been convicted at least twice of the offense. Subjects were put into one of three "streams," depending on the number of times they had been arrested for impaired driving, with longer and more intensive programs for those with more arrests. Treatment included individual and group counselling.

Participants were required to follow certain rules to remain in the program: sobriety, punctuality, and presence and participation in the program activities. The evaluation results showed that the mechanisms for assigning offenders to one of the three streams worked; that of 35 participants who started the program in 1984-85, 31 finished it, and 24 "succeeded" in following the rules. Program participants were also generally satisfied with the program. What is not known is whether the program had any effect on the drinking/driving behaviour of offenders.

Whitehead et al. (1984) evaluated an impaired driver treatment program (I.D.T.P.) in St. Louis, Saskatchewan. The program was established for impaired drivers with multiple convictions and focused on the general problem of alcoholism, rather than simply drinking and driving. The program involved two weeks of a compulsory jail term being spent at the St. Louis Correctional Centre. The driver also had his/her license suspended. The two-week rehabilitation program was based on the principles of Alcoholics Anonymous (A.A.) and emphasized that alcohol was at the core of the clients' problems. Each day was highly structured and involved lectures, group discussions, films and individual counselling. Program participants, all of whom were male (n=262), were compared to those who had served their entire sentence in jail. The group going to jail received information about drinking and driving, and inmates had access to some therapeutic resources, such as A.A. and counselling. Assignment to the St.Louis program or to jail was not random; those who attended St. Louis requested to do so, and it had been determined that they could benefit from the program. Thus, they may have been more motivated and had more serious alcohol problems than those who went to jail.

Subjects were matched on the basis of major offense, ethnicity, age, education and length of sentence. Both populations were divided into Native and non-Native for the purposes of data analysis. Evaluation of the program focused on the eight objectives of the program and this included both process and outcome objectives. Data were gathered through interviews, questionnaires and conviction records for 25 months following discharge. Follow-up data were available for 77% of the St. Louis sample.

St. Louis program participants were generally positive about the program and felt that it had allowed them to see the destructive role of alcohol in their lives. The key question concerning outcome involved comparing the average number of "clean days" of those who went to jail to those who went to St. Louis. "Clean days" were defined as the number of days between release from jail or St. Louis, and coming to the attention of correctional services for the commission of another offense. With respect to drinking-driving, neither Natives nor non-Natives who attended St. Louis had significantly more clean days that their individually matched control who elected to go to jail. This may be because the St. Louis program took a broad approach to treatment and did not focus specifically on drinking and driving. As for other crimes and offenses, such as Liquor Act violations and crimes against property, the St. Louis group generally did better than the jail group. However, the differences were not dramatic, and the lack of a no-treatment control group and random assignment of subjects makes interpretation of the results difficult.

In Alberta, AADAC has implemented and evaluated two educational programs aimed at impaired drivers: the IMPACT program and the Alberta Impaired Drivers Course (AIDC). IMPACT is a province-wide program based on an adult education model of prevention. It endeavours to help recidivist impaired drivers gain insight and self-awareness into the role that alcohol and/or other drugs play in their lives. Facilitators assist participants though lectures and structured small group activities as part of a weekend residential immersion program. The program aims to differentially assess and document each participant's level and pattern of alcohol and/or other drug use, and determine the extent to which this usage affects major life areas. Once the individual's future needs are identified, appropriate action plans and alternatives to impaired driving are presented. Referrals to the IMPACT program come primarily from the courts, the motor vehicle division, or the driver control board. Only a few program participants are self-referred. Attendance at IMPACT is also a requirement of Alberta's Motor Vehicle Division for licence reinstatement.

To evaluate the IMPACT program and assist with program development, seven formative studies were undertaken to address a number of issues (Jeune et al. 1988). Of concern were issues related to program implementation, short-term effects on participants' attitudes, knowledge and behaviour, and facilitator perceptions and attitudes towards the program.

Results indicated that elements of the IMPACT program were generally delivered uniformly across all program locations, that the small groups were conducive to providing a supportive environment for discussion, that facilitators expressed enthusiasm and commitment to the program, and that participants' perceptions of the program were generally positive. However, some recommendations were made of ways to strengthen the program. For example, although the group environment was determined to be conducive to achieving the program objectives, there was some evidence that the discouragement of negative feelings and inter-group disagreements may have hindered the participants' self-disclosure and honest response to group members. The authors suggested that facilitators encourage more open and frank expression of feelings and thoughts.

There was some evidence that impaired driving offenders who were recidivists benefited from the IMPACT program. Huebert (1990), in an analysis of post-treatment changes in IMPACT participants, found a low recidivism rate of approximately 12%. Similarly, Jeune et al. (1988) found in a short-term and long-term post-treatment follow-up of IMPACT participants, increased awareness about the role that alcohol and/or other drugs could play in their lives, as well as improved attitudes towards impaired driving. The majority of respondents also reported a decrease in alcohol consumption since attending the IMPACT program.

The Alberta Impaired Drivers Course (AIDC) is a one-day course attended by first-time offenders attempting to have their driving privileges reinstated. The program is primarily educational in focus and aims to provide clients with information and the opportunity to assess their drinking behaviour. It facilitates treatment for individuals considered to be at risk of developing further problems. The one-day course consists primarily of lectures, films and small group discussions. Davidson (1983) found high levels of alcohol abuse among many AIDC participants and that, for a significant number of them, impaired driving was a well-established habit. Results of the program's evaluation showed significant post-treatment changes in attitudes towards impaired driving. Huebert (1990) found a low recidivism rate of approximately 12% among AIDC program completers. Clients assessed as serious substance abusers were more likely to be reconvicted for impaired driving. This is similar to results of other studies that suggest educational programs for drinking-driving offenders are more effective for social drinkers, who are less likely to become recidivists.

Although the process evaluations of IMPACT and AIDC provided helpful data for making program improvements, the outcome data are clearly limited in several respects. For example, all the studies relied heavily on self-reports in their follow-up analyses of post-treatment changes in behaviour. Some studies suffered from poor response rates to post-treatment follow-up interviews. For example, in the Jeune et al. (1988) short-term follow-up study of IMPACT participants, only 59 out of a possible 133 participants were available to participate in the one-year follow-up. The follow-up group differed significantly from the larger study sample (e.g., the follow-up group had fewer females, was slightly older and had more extensive alcohol and other drug problems). The results, therefore, cannot be generalized to the larger IMPACT population. Finally, the lack of a comparison group in these studies preclude any strong statements linking participation in the program with changes in knowledge, attitude or short-term behaviour.

In summary, the results of Canadian evaluations of educational or counselling programs for impaired drivers are similar to results in the international literature. Some studies indicate positive effects on knowledge and attitudes but no evidence is available to indicate durable effects on behaviour. Further, the methodological difficulties evident in many of the Canadian studies are similar to those cited in the major reviews of this area (e.g., Foon 1988). It may be too much to expect long-term behavioural changes to develop from brief participation in these intervention programs. It may be more appropriate to be more selective in the type of problem drinker referred to these programs and, depending on the severity of the problem, match individual cases to programs of varying format and intensity.

Programs in the Workplace

Most workplace programs for alcohol and other drug problems fall into two broad categories: Employee Assistance Programs (EAPs) and "wellness" health promotion programs. The majority of programs are EAPs and are oriented more towards the treatment of alcoholism than prevention or early intervention (Roman 1981; Nathan 1984). Much lip-service has been paid to the potential of EAPs as a form of early intervention but there is little evidence to support this view (Shain and Groeneveld 1980). Although no single, generally accepted standard for the delivery of EAPs exists, the following are the most common components: (1) identification of problem drinking through impaired work performance; (2) confrontation of the employee by the work supervisor; (3) referral to internal or external resources for counselling or treatment; and (4) the threat of disciplinary action or dismissal if improvement is not made (Babor et al. 1986). Most programs now take a "broad-brush" approach and do not focus exclusively on alcohol problems.

Evaluations of EAPs have been made difficult by widely varying objectives and implementation strategies (Jerrell and Rightmyer 1982). In addition, most studies have employed pre- and post- designs without comparison groups. These, and other factors, account for the absence of research evidence in support of EAPs generally, and their contribution to early intervention specifically (Jerrell and Rightmyer 1982; Walker and Shain 1983; Nathan 1984). Much of the evidence cited in favour of EAPs comes from rather limited evaluations of the treatment program or counselling service offered to the problem drinking employee (e.g., Kurtz et al. 1984). This is quite different, however, from evaluating the EAP as a whole and the effectiveness of the various components (Babor et al. 1986).

Worksite health promotion or "wellness" programs offered by large corporations may have a component to help identify heavy drinking and provide intervention when needed. However, wellness programs usually take a very broad lifestyle approach, and many do not even include alcohol as a risk factor for health. The most common health behaviours and risk factors addressed include smoking, nutrition, exercise and stress management (Weinstein 1986). Some programs also include an emphasis on creating a healthy work environment. One such comprehensive program (Johnson and Johnson's Live for Life Program) has been evaluated and shown to be effective in reducing employees' hospital utilization and medical claims paid by the company (Bly et al. 1986). There is considerable research support for the effectiveness of wellness programs in reducing some risk factors for health, and some dimensions of health (e.g., Blair et al. 1984; Baun et al. 1986; Bibeau et al. 1988). No strong evidence is available from the international literature to demonstrate the impact of these wellness programs on alcohol use or related problems.

These observations from the published international literature mirror much of the situation in Canada. Canadian studies have documented some positive effects of worksite wellness programs. For example, Cox et al., (1981) showed that participants in an employee fitness program improved on several measures of fitness as well as absenteeism and employee turnover. However, few Canadian evaluations have focused specifically on alcohol consumption or the detection and management of employees with alcohol-related problems.

In Ontario, a study by Shain et al. (1986) found significantly lower average weekly consumption among both male and female employees after participation in a six-hour educational program. Greatest reductions in drinking occurred among the heaviest drinkers. However, no control or comparison group was employed. Their summary of all the outcome data suggested the changes in consumption were due at least in part to exposure to the program. Shain and colleagues are also evaluating a joint Addiction Research Foundation/Health and Welfare Canada worksite project with a broad environmental approach to wellness. The program has been developed on the basis of a comprehensive needs assessment and recently established evaluation criteria (Shain 1990).

A comprehensive evaluation of a worksite health promotion program for alcohol consumption is also currently under way in Montreal (Kishchuk et al. 1990). The program is aimed at all drinkers including those at moderate-high risk of developing alcohol problems. In general terms, the program aims to enable drinkers to consume alcohol in a healthy fashion. The specific content of the intervention has been developed through a series of process evaluations based on focus groups and other qualitative approaches. This stage in the evaluation has shown, for example, that there is considerable resistance in the workforce to some specific aspects of alcohol education programs. There was resistance, for example, to using responses to questionnaire items as indicators of "alcohol problems" since employees felt this inappropriately labelled them as alcoholic. Concerns were also raised about using specific consumption criteria as "safe" limits on drinking (e.g., 14 drinks per week) since many were not consuming at this level and felt the program would inappropriately promote more drinking. An effectiveness evaluation is to be implemented and, overall, this innovative program represents an excellent example of a staged and multifaceted approach to the evaluation of a worksite alcohol program.

One of the most comprehensive evaluations of a Canadian Employee Assistance Program was that reported by Groenveld et al. (1984). The evaluation examined issues concerning the implementation of the policy component of the EAP within the organization as well as outcomes associated with participation in subsequent alcoholism treatment. The process evaluation documented varying perceptions about the objectives of the program (e.g., cost reduction vs. rehabilitation) and various indicators of policy implementation (e.g., number and characteristics of employees referred, criteria used by supervisors for making referrals, and outcome of referrals). In the outcome evaluation, a group of alcohol abusers that had been referred to treatment were compared to a group of non-alcohol abusing employees matched on the basis of age and seniority. Substantial improvements were noted for program participants on costs related to health care services, disciplinary events and absenteeism. A follow-up study of another group of program participants found that most reported that their treatment had been helpful and that it made them better able to manage various areas of their life (e.g., job, family). Self-reported alcohol consumption declined as well. Almost all the employees participating in the follow-up study had sought treatment at an external treatment program and, although it was generally viewed as helpful, many had difficulty with some aspects of the treatment (e.g., the inpatient component, follow-up contacts). The evaluation concluded with several recommendations for improving the process of identifying problem drinkers in the workforce and reintegrating employees after treatment. This evaluation provides some qualitative and quantitative evidence of the successful implementation and effectiveness of an EAP. However, the nature of the evaluation design concerning client outcome precludes definitive statements that the policy and/or treatment components caused the perceived improvements in drinking behaviour and overall functioning.

In summary, there is some evidence that worksite "wellness" programs may be effective in improving some dimensions of health and reducing some behavioural risk factors, such as smoking and diet. Their effectiveness in reducing alcohol or other drug use is, however, largely unproven. EAPs have rarely been evaluated in a comprehensive fashion and, as yet, have provided little evidence from controlled evaluation studies of program effectiveness in relation to alcohol consumption and alcohol-related problems specifically.

Programs in Health Care and Social Service Settings

One of the most significant trends in the delivery of alcohol and other drug services over the past decade is the development of early intervention programs that can be strategically placed in settings where professionals routinely interact with people with alcohol and other drug problems (e.g., Martin 1990). The strongest emphasis in this work has been placed on physicians and other health care professionals (Skinner 1990). There is ample evidence that physicians often fail to encourage their patients with drinking problems to reduce their drinking, warn them about the health hazards of drinking or, if necessary, to refer them to an alcohol treatment program (Hingson et al. 1982; Cleary et al. 1988). However, physicians are not the only professionals in the community who could take on a larger role in this area. All primary health care workers and many other professionals such as social workers and psychiatrists could make better use of the techniques available for identifying and managing the people they routinely encounter with alcohol- and other drug-related problems (e.g., Ehline and Tighe 1977; Jacobson and Lindsay 1980).

Strategies for Detection

Much research has been directed toward finding simple and accurate screening procedures for the early detection of alcohol and other drug problems. Four main areas of investigation have been ongoing in the area of alcohol abuse: laboratory tests with biochemical markers of alcohol consumption; questionnaires/interviews based largely on psychosocial indicators of alcohol problems; clinical indices of consequences of excessive alcohol use; and combinations of these techniques.

The most frequently used biochemical markers of alcohol consumption are serum gamma-glutamyl transpeptidase (GGT) levels and mean erythrocyte cell volume (MCV). GGT is an enzyme stored mainly in the liver and influenced by the amount of alcohol being metabolized. MCV refers to the volume of red blood cells and is thought to be a direct effect of alcohol on bone marrow. Initial studies of these indicators were based on samples of people in treatment for alcohol problems (e.g., Rosalki and Rau 1972) and they were found to be abnormal in 60% to 80% of the cases. However, more recent results based on samples from the general community or medical practice have shown that they may detect only 10% to 40% of people with alcohol problems (e.g., Chick et al. 1981). Although these and many other biochemical markers have been studied (see Babor et al. (1986) and Saunders and Conigrave (1990) for recent reviews), the general conclusion to date is that they have not been shown to be sensitive enough for identifying early stage problem drinking and that they do not perform as well as other methods that are available for routine application (Bush et al. 1987). Research is now focusing on biochemical measures that are more sensitive to early stage drinking problems (e.g., Stibler et al. 1986). Results from these laboratory tests, however, may still have value in providing objective evidence of harm related to the use of alcohol and convincing the patient to abstain or cut down.

Questionnaires asking about alcohol-related problems and consequences have a long history of helping professionals make a diagnosis of alcoholism or alcohol dependence. Several variations of this approach have been used to detect early-stage problem drinkers. The best known of these questionnaires are the CAGE (Mayfield et al. 1974) and the Michigan Alcoholism Screening Test (MAST) (Selzer 1971). The CAGE questionnaire[5] has received considerable attention with the most recent results showing very high *sensitivity* (i.e., Can it accurately identify people with drinking problems?) and specificity (i.e., Can it accurately rule out people without drinking problems?) (e.g., King 1986; Bush et al. 1987; Beresford et al. 1990). For example, Beresford et al. (1990) found that the CAGE identified 76% of positive cases and ruled out 94% of negative cases — by far outperforming a variety of biochemical indices. One significant advantage of the CAGE is its brevity, allowing it to be easily and surreptitiously incorporated into the routine interviewing of patients. Still somewhat debatable, however, is the extent to which it can identify individuals just beginning to experience problems related to their drinking.

The MAST and the many modified versions of this instrument (Pokorny et al. 1972; Swenson and Morse 1975; Selzer et al. 1975; Kristenson and Trell 1982) have also been studied in many health care settings and, like the CAGE, certainly have potential for use in these settings as a screening instrument (see for example, Cleary et al. 1988; Fleming and Barry 1991). However, the MAST has few, if any, advantages over the CAGE, and also seems even more oriented to detecting only serious cases of alcohol abuse and dependence.

A wide variety of other psychosocial, problem-oriented screening questionnaires have been developed (e.g., the Canterbury Alcoholism Screening Test (Elvy 1984)). One recent and significant contribution to this area has come from a WHO collaborative study on early intervention (Babor and Grant 1989). The Alcohol Use Disorders Identification Test (AUDIT) was developed to identify people at a hazardous level of alcohol consumption or related problems (Saunders et al., in press). Although considerably more research is needed to validate the AUDIT in different settings and with different clinical populations, results from original studies showed a sensitivity of 92% and specificity of 94%. AUDIT has been advocated as both a screening instrument and as a general framework for a health professional to use when taking an alcohol history (Saunders and Conigrave 1990).

Clinical indices and signs of excessive alcohol use represent a third approach to detecting early stage alcohol problems in health care settings. Le Go in France developed a matrix or grid of clinical signs such as tremor and physical stigmata, and this "Le Go Grid" has been used extensively in France as a screening instrument (Le Go 1976; Babor et al. 1985). It has also been recommended that various clinical signs, symptoms and other aspects of patient behaviour such as appointment cancellations and requests for sick notices, be incorporated into composite indices to help identify patients with drinking problems (e.g., Wilkins 1974). In the WHO early intervention project, several physical signs formed the basis of a clinical screening procedure (Saunders et al., in press). As noted by Saunders and Conigrave (1990), one of the problems with detection strategies of this type is that most physical consequences result from more regular, prolonged heavy drinking than might be inferred from the term "early" identification. They provide a list of clinical indicators that have been cited in the literature as early indications of problem drinking. As with the results of laboratory tests, feedback from a physician about these objective, physical consequences may help break down the patient's denial of a drinking problem. They may also serve to alert the physician to the need for more in-depth inquiry about alcohol consumption rather than serve as a screening procedure *per se*.

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[5] CAGE is an acronym for the four questions of the instrument: Need to Cut down on drinking? Annoyed by criticism about your drinking? Guilty about drinking? Need a morning drink or Eye-opener?

Finally, some researchers have tested combinations of the various types of approaches in an effort to improve the accuracy of detection. Examples include combining different biochemical indices (Ryback et al. 1982) and combining GGT measurement with a modified version of the MAST (Kristenson and Trell 1982). There are, however, statistical reasons why combinations of different screening tests often reduce rather than improve their sensitivity (Sackett et al. 1985). Furthermore, unless the individual indicators are routinely available, composite indices may be less practical to use than other alternatives that are available for detecting problem drinkers.

In summary, a wide variety of methods have been evaluated as screening instruments for detecting early stage problem drinking. No one method has emerged as the most accurate and reliable for early detection in heterogenous populations. However, most agree that incorporating brief interviews or questionnaires such as the CAGE or AUDIT into routine daily practice is the recommended approach at the present time (e.g., Saunders and Conigrave 1990). Other approaches can be used to supplement information from these methods.

Studies of the sensitivity, specificity and predictive value of various instruments and procedures represent one type of evaluation of these screening techniques. These studies, however, are usually closely monitored and controlled research projects, and do not address practical issues concerning how these techniques can be implemented in various settings in the community. In addition, they do not address important questions and issues concerning the training of physicians and other health professionals, or various strategies for dissemination of the research findings. Very few studies have addressed these implementation and dissemination issues.

A study reported by Dudgeon and Mayfield (1985) examined the effect of introducing the CAGE questionnaire on the detection skills and diagnostic habits of medical resident physicians. They reviewed 100 records of patients admitted to an ambulatory medical service before the inclusion of the CAGE in the routine documentation. These records were compared with the records of the first 100 patients seen after the inclusion of the CAGE. There was little evidence to show any systematic gathering of data or patient work-up had been set in motion by a positive response to the CAGE questions. There was some indication, however, that it assisted in applying an "alcoholic" diagnosis and improved the quality of the written case notes for patients. It was concluded that while the CAGE can be a valuable aid to the physician, its mere inclusion in the routine documentation for patients is not likely to be overly effective without concerted efforts to train and motivate physicians in its use.

In Great Britain, "health facilitators" have been used to train physicians and influence their routine office practices vis à vis health promotion and preventive practices. The model was developed to provide training and consultation to primary care teams in the area of cardiovascular risk factors (Fullard et al. 1984; 1987), and has since been expanded to other health problems including problem drinking (Anderson 1990). For problem drinking, alcohol is viewed as a risk factor for health. One facilitator is typically responsible for training and consultation with 30 to 40 primary care teams within the jurisdiction of a given health authority. An evaluation of an alcohol facilitator project is currently under way (John 1990).

Another approach for disseminating early intervention, as well as treatment, strategies is the A-team model (Williams et al. 1985). This program is a hospital-based intervention, involving an interdisciplinary team which provides consultation and education to hospital staff on detecting and managing patients with alcohol problems. Many aspects of the program are oriented toward detecting and treating more severe cases of alcoholism (e.g., protocols for detoxification). Its potential for disseminating early intervention tools and techniques has not been fully explored.

Canadian researchers have made significant contributions to the development of tools and techniques for detecting early stage problem drinkers. The work of Skinner and colleagues in Toronto has been the most notable, with contributions made on a wide variety of practical strategies that can be used in health care and other settings. A "Computerized Lifestyle Assessment" has been developed, which includes a component that screens for heavy alcohol consumption and related problems (Skinner et al. 1985a; 1985b; 1987). A "Trauma Scale" has also been developed, and it may be used in conjunction with biochemical markers (Skinner et al. 1984). The most comprehensive approach is the "Alcohol Clinical Index," which combines clinical signs and symptoms with items from a medical history (Skinner et al. 1986). In addition to these techniques and practical contributions, Skinner and colleagues have clearly articulated the role of family physicians and other health care professionals in the areas of prevention, early intervention and treatment, and have provided much of the conceptual, theoretical base on which to implement relevant programs and procedures (e.g, Skinner 1985a; 1990; Skinner and Holt 1983).

Within Canada, as in other parts of the world, there has been little evaluation of the dissemination and/or implementation of these screening procedures in various field settings.

In Alberta, AADAC was concerned by the traditionally low rates of referrals from physicians to their treatment services. In conjunction with the Alberta Medical Association, AADAC developed a resource kit to better enable physicians to diagnose and treat substance abuse (Brown et al. 1990). The kit, entitled "Treatment of Alcohol and Drug Related Problems: Resources for Physicians," was composed of diagnostic aids, a directory of addiction services in Alberta including a formalized referral and communication system, and a small detailed handbook on the medical management of alcohol-related problems. Two posters to be displayed in physicians' offices were also included to encourage patients to discuss their substance abuse problems with their physician. One hundred and three physicians were selected for the study, based on the criteria that they must be a general practitioner or specialist providing ongoing medical care for their patients. Most physicians completed a pre-test questionnaire upon receipt of tOhe kit and participated in a brief telephone follow-up interview at three months and six months after delivery.

Results of the evaluation indicated that three months after receiving the kit, two-thirds of the physicians had read it, and the majority had found the material to be somewhat or very useful. Feedback from some physician specialists (e.g., obstetricians, orthopaedic surgeons) indicated that the kit was not relevant for the services they provided. Although 15% of the physicians who had read the material had used the diagnostic aids, the majority of them had used the aids less than once a month. Six months after receipt of the kit, 16% of the physicians reported having used the manual in the diagnosis or treatment of patients with substance abuse. Of this group, the majority reported that the manual had assisted in their providing better service to patients. Over six months, there was a significant increase in physicians' comfort level in initiating discussions about alcohol and other drug problems and their use of AADAC services. After receiving the kit, staff also indicated more appropriate physician referrals and increased satisfaction with communication. The authors conclude that the resource kit was valuable to physicians. Several recommendations were made to increase its usefulness by including Native, women and adolescent issues as well as the targeting of the kit to more selected physicians.

One of the most important axioms of any screening and early detection program is that a practical and effective means must also be available for the treatment of identified problems (Wilson and Jungner 1968). By intervening early, especially before psychological and/or physical dependence has developed, there is a better chance for successful intervention. A number of studies have evaluated the effectiveness of counselling or other treatment techniques for problem drinkers identified in early intervention programs. While some of these studies are also relevant in the next chapter on the evaluation of treatment programs, they are briefly reviewed here because of their clear connection to early intervention initiatives.

Strategies for Intervention

Counselling strategies for problem drinkers who are identified in early intervention programs are grounded on the general principle of matching treatments to the specific strengths and problem areas of the individual patient (Glaser 1980; Institute of Medicine 1990a). One of the criteria for matching clients to treatment is the severity of the problem. For example, one important study showed that patients with few symptoms of alcohol dependence derived the most benefit from brief counselling with a goal of reduced consumption, whereas patients who were physically dependent did better with more intensive treatment and a goal of complete abstention (Orford et al. 1976). Thus, most treatment strategies that are advocated as part of early intervention programs are aimed at non-dependent problem drinkers, with flexible goals that include reduced drinking. There is a heavy reliance on behavioural and "self-management" techniques guided in large part by the work of Miller and colleagues (e.g., Miller 1980; Miller and Taylor 1980). The nature and effectiveness of these behavioural techniques are discussed in more detail in the next chapter.

Kristenson et al. (1983) in Malmo, Sweden, studied a large group of healthy middle-aged men who had been identified as heavy drinkers as part of a general health screening project. The sample was identified on the basis of raised GGT levels and was randomly divided into an intervention and control group. Members of the control group were informed by letter that their test had indicated an impaired liver, were advised to cut back on their use of alcohol, and asked to come in for new liver tests in two years. The intervention group was given a detailed physical examination, a comprehensive interview about their use of alcohol and related problems, advice on moderating their drinking, and several follow-up appointments and contacts to monitor progress. Over a five-year follow-up period, GGT levels in both groups improved. However, the intervention group had significantly lower rates of sick absenteeism, hospitalization and mortality than the control patients. This was one of the first demonstrations that a simple intervention with regular feedback could have a major effect on drinking habits and overall health.

This general finding has been confirmed in several subsequent projects in various medical settings. Chick et al. (1985) assessed the effectiveness of a 30- to 60-minute counselling session and a self-help manual for non-dependent problem drinkers who had been identified with a screening instrument in a general hospital. Although both the intervention and control groups reported significantly less alcohol consumption at the one-year follow-up, the intervention group had fewer alcohol-related problems. Wallace et al. (1988) identified a sample of heavy drinkers in general practice settings and randomly assigned half to receive a brief counselling session from their doctor. During the session they were given an advice booklet, a drinking diary and a one-month follow-up appointment. At follow-up one year later, both men and women in the intervention group had a significantly greater reduction in reported alcohol consumption.

There is a need for more evaluation studies of the treatment component of early intervention strategies in Canadian settings. Behavioural treatment and self-help approaches appropriate for early intervention programs have been evaluated in controlled research studies by Sanchez-Craig et al. (1984; 1989). These studies fit into the larger, international literature on broad-spectrum behavioural treatment techniques for non-dependent problem drinkers (Miller and Hester 1986). Results of the studies by Sanchez-Craig and colleagues showed, for example, that problem drinkers who are not dependent on alcohol do just as well in programs with a reduced drinking goal as they do in programs with the goal of complete abstinence (Sanchez-Craig et al. 1984). Moreover, the reduced drinking goal was viewed as more suitable and acceptable to the majority of clients.

Comprehensive evaluations of these behavioural and self-help strategies have yet to be undertaken within early intervention programs in community field settings in Canada. McIntosh and Sanchez-Craig (1984) report the results of a pilot study in a family medical practice. Seventeen patients were selected for the study on the basis of their drinking history or by MAST or CAGE assessments. Two sessions were offered. The first session was to set a safe (or initial) drinking goal and receive instruction on attaining the goal and record-keeping procedures. The second session was to ensure a clear understanding of the procedures to be followed and adjust the goal if necessary. Of the 17 patients, 14 were followed for at least six months, 9 of them for at least one year, and the other 5 for two years. Before treatment began, the patients' weekly alcohol consumption ranged from 12 to 130 drinks; by the last follow-up visit nearly half were abstinent, and none were consuming more than 35 drinks per week. A controlled trial of a similar treatment strategy is currently under way in another medical practice (McIntosh and Leigh 1989).

In the community-based health promotion project undertaken in Southern Ontario by Giesbrecht et al. (1990), and discussed in the previous chapter, an early intervention counselling program was established as one strategy for changing the drinking habits of the local population. The program was aimed at heavy drinkers who were recruited through medical and legal referrals, advertisements and word-of-mouth. It involved seven weekly one-on-one sessions with a counsellor. The sessions involved an assessment of alcohol dependence, ongoing review of a drinking diary, and development and review of strategies for control of alcohol consumption. Results showed that the alcohol consumption of the program participants declined during their involvement with the program. For example, the percentage of clients consuming more than 14 drinks per week declined from 54.1% from the week before the program began to 21.2% in the last week for which data were available. However, the lack of a control group and longer-term follow-up preclude strong statements concerning program effectiveness. Process evaluation of the program's implementation documented the initial resistance to the program, particulary by local physicians and treatment professionals, and its gradual acceptance by the health and social service community.

AADAC in Alberta provides the Drinking Decisions Program to socially stable individuals with less severe alcohol problems. Clients are assisted in assessing their drinking behaviour and are taught skills to reduce alcohol consumption or abstain altogether. The program utilizes a cognitive-behavioural counselling approach based on an educational model to assist clients with an alcohol problem before it reaches the chronic stage. To be eligible for the program, clients must be under 45 years, drink 21-45 drinks per week and have less than nine years of problem drinking, family support, and little previous treatment for alcohol problems. There are also several criteria for exclusion (e.g., family history of alcoholism). An evaluation of the program involved 55 clients who had contacted the program between July, 1982 and February, 1984 (Thompson 1986b). The majority of study participants were admitted to the treatment phase, but non-completers and those who were only assessed were also included in the study. Information gathered at assessment provided demographic and pre-treatment data. A telephone follow-up was conducted at one year and at two and one-half years post-treatment to determine drinking behaviour, social and family life, emotional and physical health, financial and employment situation and perceptions of the Drinking Decisions Program. Forty-two clients from the original sample were available for follow-up. Results indicated an improvement in drinking, family life and overall happiness for all three subgroups: completers, non-completers and patients who were only assessed. However, those who had completed the program showed larger reductions in drinking behaviour from pre-treatment levels and increased satisfaction with their family and social life. Both completers and non-completers felt the program had increased their awareness of drinking as a problem and rated the program very positively. Although these results provided some evidence of program effectiveness, the lack of a no-treatment control precludes strong statements of causality. In addition, some concerns were raised in the evaluation about the representativeness of the group available for follow-up interviews in the sample of program completers.

In summary, results from several controlled research studies have shown the potential for very low-cost intervention with problem drinkers identified in health care settings. Although the reductions in alcohol consumption and related problems that are achieved in many of these studies are modest, the time and costs involved in the intervention are even more modest (Babor 1990). A considerable amount of research is still in progress evaluating treatment and counselling strategies appropriate for early stage problem drinkers (e.g., Babor et al. 1986). More research needs to address the comparative effectiveness of these intervention strategies for men and women. This work also needs to more adequately address drugs other than alcohol and issues of cross-addiction. In addition, as with the evaluation of strategies for detecting problem drinkers, more work needs to be done on the logistic, technical and professional issues in the implementation of the treatment component of early intervention programs. For example, more than one study has showed that although physicians may be provided with a package outlining screening procedures, interview guidelines and patient educational materials, many of them will be reluctant to use the material (McLean and Brown 1986; Brown et al. 1990). The training and dissemination strategies that are suitable for the various methods of detecting patients with alcohol problems (e.g., the alcohol facilitator, the hospital A-team) must also consider the treatment component of early intervention programs. This speaks to the need for more qualitative studies of program implementation and the evaluation of these various training and dissemination strategies. Finally, there is a need to expand the range of settings in the community where early intervention programs are implemented and evaluated (see, for example, Ehline and Tighe 1977; Jacobson and Lindsay 1980).

Programs For "High Risk" Populations

A number of subgroups in the population have been identified as being at particularly high risk for the development of alcohol- and other drug-related problems. Although there is considerable overlap in health promotion, early intervention and treatment programs for these subgroups, they are typically included in discussions of early intervention (e.g., Babor et al. 1986). The groups most commonly included in this discussion are women or young people with various types of problems or in various living conditions (see, for example, Dupont 1989).

With the increased interest in women's issues and women's health over the past few decades, a number of prevention programs directed at women in general and specific high risk groups of women have been developed (Ferrence 1984). Programs have focused on such target populations as pregnant women whose children run the risk of fetal alcohol syndrome, depressed women who are at risk of cross-addiction, employed women, elderly women, and women in general who use tranquilizers and alcohol.

Women are nearly twice as likely as men to use tranquilizers (Health and Welfare Canada 1989b). A program has been developed in Quebec to inform women about tranquilizers and alcohol, encourage women to reflect on social attitudes and stereotypes about female addicts, provoke changes in consumption, and encourage a collective response to the problem (Mercier, cited in Chamberland 1989). It is a flexible program, using a manual, video, posters and informal group work, to reach women in all regions, of all social classes and all ethnic groups. The evaluation of the program showed it was unable to reach as large a part of the target audience as hoped. Those who did participated had gains in knowledge on the consumption of tranquilizers, but there were no lasting changes in attitudes or behaviour.

For a variety of reasons, most early intervention efforts targeted at women have focused on pregnant women. Fetal alcohol syndrome (FAS) is more easily viewed as a public rather than individual health problem, and it is associated with a range of levels of drinking. Also, it cannot be classified as a "victimless crime," unlike other alcohol-related behaviours, such as public drunkenness. There are reasons to be optimistic about the potential effectiveness of programs aimed at reducing FAS. Ferrence (1984) describes several programs geared toward the prevention of problems associated with drinking during pregnancy. While a number of the programs have not yet been evaluated, those that have tend to show that the programs are effective in reducing drinking during pregnancy. A program at Boston City Hospital involved informing pregnant women who reported moderate or heavy drinking of the risk to the fetus. Of more than 1700 women interviewed, about 10% reported heavy drinking, and they were referred to a therapeutic program. About one-quarter were counselled three or more times. Of these, more than half abstained or reduced their consumption of alcohol before the third trimester of their pregnancies. A program at the University of Washington involved a mass media campaign aimed at the general public. It included telephone messages and brochures for pregnant or potentially pregnant women, counselling for pregnant women, referral services for pregnant women and mothers with alcohol problems, and training on drinking and pregnancy for appropriate professionals. Encouraging results were obtained from a preliminary evaluation focusing on three groups: (1) women who received a brochure and the screening questionnaire; (2) those who were counselled and had no apparent drinking problem; and (3) those who were counselled and did have a drinking problem. There was a significant decrease in drinking during pregnancy among the two groups of women who were counselled. Furthermore, increases in drinking after delivery were less pronounced for the women who had been counselled than those who had received the less intensive contact. The evaluation of the training component for professionals was also generally positive. In general, the evaluation data suggest that information and counselling programs for women concerning the risks associated with drinking during pregnancy are effective.

There appears to be good evidence that children of alcoholics are at a greater risk of developing alcohol problems, both for genetic and psychosocial reasons (Goodwin 1984). Consequently, they have become an important focus for prevention and treatment programming. Programs are new, however, and there is little evaluation research to prove their effectiveness (Russell et al. 1985). The CASPAR program in Massachusetts is one of the best documented programs for children of alcoholics operating within a school setting[6] (DiCicco et al. 1984). For children in grades two through six, groups with 8 to 12 participants meet during school hours weekly for 10 weeks. For older children in grades 7 to 12, groups meet after school at CASPAR's facility, a private residence off school grounds. There are two types of groups for the grade 7 to 12 children: BASIC groups offer general alcohol education and are open to any child who wishes to attend, including those from alcoholic families; Children of Alcoholic Families (CAF) groups focus on alcoholism, its effects on the family and strategies for coping. Recruitment to both programs is through classroom visits by group leaders and peers, referrals by teachers, counsellors and parents and word-of-mouth reports. Process evaluation data have shown that while children of alcoholics will participate in a program like BASIC where they are integrated with other children, recruitment is more difficult for specialized groups such as CAF that will identify them as children of alcoholics. For children who did participate in the CAF groups the evaluation data suggested that there was more self-disclosure and more intense personal involvement than among children of alcoholics who elected to remain in the BASIC groups. However, even the children of alcoholics in the BASIC groups experienced that program differently than their counterparts from non-alcoholic families. For example, they felt that the discussion during the program was more private, and raised their awareness of alcohol problems in the family. In addition, a higher percentage of the children of alcoholics in the BASIC group reported that their participation made them feel they should be drinking differently and that they had drunk less since attending the meetings. Although these preliminary data on program effectiveness need to be examined in more detail with longitudinal, and better controlled, studies they do at least show the potential for reaching children of alcoholics with non-stigmatizing alcohol education groups.

Programming efforts have also been directed to high risk, deviant youth who may or may not be children of substance abusers. The Student Assistance Program in New York State uses professional counsellors to provide alcohol and other drug abuse prevention and intervention services for high school students who are children of alcoholics; have themselves been abusing alcohol or other drugs; or exhibit behavioural or academic problems that could indicate their own or their parents' abuse of alcohol or other drugs (No author 1983). Evaluation data from the first year showed a significant improvement in school attendance among program participants whose parents were alcoholic. Participating students reported a greater decrease in alcohol or other drug use and abuse than a comparison group. However, only the treatment subgroup of abusing children of alcoholic parents showed a statistically significant decrease in drinking, marijuana use, being high at school, and the use of non-heroin narcotics. In a follow-up evaluation, there was a significant decline in all levels of alcohol and other drug use for both experimental and control group students. The lack of published details about the evaluation design, the composition of the comparison group and the measures that were employed preclude any strong conclusion being drawn from these reported findings.

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[6] CASPAR is the acronym for Cambridge and Somerville Program for Alcoholism Rehabilitation. The organiza tion provides a range of treatment services. The program for children of alcoholics is offered by CASPAR's Alcohol Education Program and is partly delivered in local schools, as well as on-site at CASPAR's facility.

Dupont (1989) reviewed programs aimed at youth in high risk environments. This review is of particular note since it includes a discussion of strategies and procedures for identifying these youth at high risk of alcohol and other drug problems. These screening and early intervention protocols are at a very early stage of development and, at present, are typically composed of checklists of various risk factors or problem behaviours (e.g., Hawkins et al. 1988). Such a checklist has also been developed by Homewood Health Services in Guelph, Ontario, and used in teacher training for alcohol and other drug abuse prevention (Homewood Health Services, undated).

In Ontario, Marshman (1990) is currently conducting an evaluation of the cost-effectiveness of a personal skills development intervention aimed at secondary students at high risk for substance abuse. The study of the HYPER program (High Risk Youth Power Enhancing Regimen) is of particular interest in that it is a comprehensive evaluation of the innovative and comprehensive health promotion approach of Ken Low in Alberta (Low 1986,1990). It is also one of the few economic evaluations of health promotion programs in Canada or elsewhere.

In Alberta, the effect of HYPER's mass media program aimed at adolescents was examined for teens at high risk and low risk for developing alcohol problems as adults (Dyer and Lind 1988). Based on adolescent psychosocial development processes, the study used a prospective model to classify teens as low or high risk. A random household survey of 462 Alberta teens and their mothers revealed that higher risk youth already experiencing alcohol problems tended to be less aware of the media campaign compared to their lower risk counterparts and to non-problem drinkers regardless of risk. High risk non-problem drinkers were similar to low risk non-problem drinkers in that both groups were aware of AADAC and the media campaign and perceived both a credible. However, high risk non-problem drinks were more likely to perceive the program as less helpful. Results also showed that while the proportion of teens with drinking problems have decreased since the implementation of the campaign, the proportion of teens with drinking problems seeking treatment had increased. The authors concluded that media programs may be more effective among the lower risk group than among teens at high risk for substance abuse.

Methodological Issues in the Evaluation of Early Intervention Programs

An area of inconsistency in the literature concerning early intervention programs is the purpose of the detection procedure or protocol. A distinction must be made between screening (identification of a possible alcohol or other drug problem in a large unselected group of persons), case-finding (more precise specification of an alcohol or other drug problem among persons who are known to be experiencing some sort of difficulty), and diagnosis (determination of the nature and severity of a problem with recommendations for treatment) (Allan et al. 1988). These varying objectives will influence program design and evaluation. For example, one detection and intervention protocol may be appropriate for a wide screening of the population generally (e.g. self assessment of alcohol or other drug consumption and a self-help guide to lower the risk). Another protocol may be more appropriate for case-finding in the context of family medical practice (e.g. CAGE and brief advice from a health professional). Finally, a protocol to aid in diagnosis (e.g. the MAST or the Alcohol Dependence Scale) may be more appropriate in some settings, especially as it relates to the decision regarding in-house management of the problem versus referral to a specialized alcohol and other drug agency.

A somewhat related issue is the need for a "gold standard" against which the many screening strategies should be compared. With no consensus on the standard for comparison, it is difficult to contrast the data across different studies in terms of the sensitivity, specificity and overall predictive value of the many detection strategies. Developing consensus on a gold standard has been hampered by the varying manner in which "alcoholism" has been conceptualized within each study. Many instruments yield a single score, or use a standard cut-off point, to allow the clinician to make a dichotomous decision of "alcoholic" or "non-alcoholic." This single entity, disease view of alcoholism differs considerably from more recent conceptualizations that focus on the distinction between alcohol (or other drug) dependence and alcohol (or other drug)-related problems, and alcohol/other drug consumption (e.g. Skinner 1985; Martin 1990). Developing a gold standard for evaluating the performance of various detection maneuvers now requires consideration of such a multidimensional framework.

A third issue not yet adequately explored concerns the predictive value of the various detection strategies. Predictive value (positive) refers to the percentage of people screened with positive tests who actually do have the condition being screened (true positives). Predictive value (negative) is the percentage of individuals who test negative who do not have the condition being screened (true negatives). Positive predictive value is influenced more by the specificity and prevalence of the problem than by sensitivity (Sacket et al. 1985; Cole and Morrison 1980). Thus, it needs to be more widely recognized that the predictive value of a screening instrument for detecting alcohol and other drug problems varies with the prevalence of these problems in the particular community service setting in which it is to be used. For example, a screening instrument may be particularly helpful in a correctional setting where prevalence is high (e.g., 50-75%), but not very helpful in some health or social service settings where prevalence is lower (e.g., 5-15%). This speaks to the need for evaluation studies of early detection strategies to be implemented in a wide variety of health, social and correctional service settings in the community.

The evaluation strategy for the various screening procedures must go beyond their value for detection and diagnosis to include an examination of the process by which these procedures are adopted and implemented by service providers. This calls for the evaluation of various types of training programs and more qualitative, naturalistic studies within different settings. Of particular interest is the effectiveness of different strategies for recruiting people identified as having alcohol or other drug problems into different types of intervention for these problems (Babor et al. 1986). Compliance with the intervention is also a major issue and one well-suited to qualitative evaluation strategies.

Studies are also needed of the value of different screening procedures for various demographic subgroups in the population (e.g., men vs. women, youth vs. elderly). Studies are also needed of early intervention procedures for people with drug as opposed to alcohol-related problems. Research is needed, in particular, on the application of different screening techniques with different cultural and ethnic populations. This is exemplified, for example, in the development of the AUDIT questionnaire (Saunders et al., in press) and some other recent research (e.g. Alcorso 1990). Any attempt to generalize early intervention procedures from one cultural setting to another should be done with caution. Since many of the early detection procedures deal with harmful consequences of alcohol or other drug use it must be recognized that the perception of these "consequences" and their seriousness is largely culture-driven.

Early intervention programs for "high risk" populations such as woman and youth require attention with a full range of process, outcome and economic evaluation strategies. In particular, strategies for early detection of "high risk" youth need to be developed and evaluated in various settings. Of particular importance in this area of research and development is the need to balance the requirement of early intervention programs with the potential negative effect of labelling and young people who are at risk (Dupont 1989). As in the development of these programs for any population, it is important that the concept of risk be portrayed as the relative probability of various outcomes given the mix of environmental and personal behavioural factors involved.

CHAPTER FOUR: *TREATMENT/ REHABILITATION PROGRAMS*

Chapters Two and Three have been concerned with health promotion and early intervention programs as two broad categories of programs within the community's response to alcohol and other drug problems. The third major category is treatment/ rehabilitation which, in itself, represents a range of different types of community services along a continuum of care.

Treatment/Rehabilitation Programs in Canada

An assessment has recently been made of the history of alcohol and other drug treatment service development in Canada as well as current trends and issues across the country (Rush and Ogborne, in press). Four periods of historical development were described in this overview:(1)from early Canadian history up to the end of W.W.II, dominated by a moralistic view of alcohol problems and little attention from government or the medical community; (2)the late 1940s up to the mid-1960s characterized by the view of alcoholism as a disease and a legitimate, chronic health problem to be dealt with by provincially funded agencies with a mandate to develop treatment services; (3)the mid-1960s up to 1980, a period best described as a time of expansion and professionalization of the treatment field in Canada; and (4)the 1980s to the present, represented by a diversification of new and existing services, a more modest growth rate, a broader biopsychosocial perspective on the nature of alcohol and other drug problems and a more formalized, systems approach to planning.

Rush and Ogborne (in press) noted the considerable diversity that exists across the provinces and territories in factors such as the administration and funding of services and the availability of programs for special target populations. However, several similarities in the delivery of programs were also noted. For example, while alcohol remains the predominant drug of abuse among clients, the majority of treatment programs identify themselves as "substance abuse services" with a broad mandate for the treatment of "chemical dependence" or "addiction." In terms of other client characteristics, the average age of the population seeking treatment is decreasing and there has been a general decline in the involvement of treatment programs with chronic, skid-row alcoholics.

With respect to types of services being delivered, there is decreased emphasis on using hospital beds that are designated specifically for the treatment of alcohol and other drug problems and a corresponding increase in emphasis on more non-medical treatment settings. There is also an increasing reliance on outpatient care. Indeed, it is generally recognized that treatment must be available in a range of community settings along a full continuum of care – detoxification, outpatient, day/evening treatment, and short- and long-term residential facilities. Increased importance is being placed on comprehensive assessment to match clients to the appropriate program(s) and to develop very individualized treatment plans.

Many treatment programs are broadening their focus to provide more assistance to the family members of people with alcohol and other drug problems and to provide a more family-based treatment experience. With native services, in particular, the consideration of alcohol and other drug abuse as a cross-generation problem is having a major influence on the design and delivery of culture-based programs.

Without a standardized national database, it is not possible to make quantitative comparisons of the nature and capacity of alcohol and other drug treatment programs across all the provinces and territories. The last national survey of these programs was undertaken in 1976 and reported by Reid (1981). Sufficient data exist, however, to indicate considerable differences across the country in program capacity and the mix of alternative treatment settings and modalities (Rush and Brochu 1991; Martin 1990).

Overview of the International and Canadian Literature

Several major reviews have been completed recently of the international literature on the effectiveness of treatment for alcohol and other drug problems (e.g., Miller and Hester 1980, 1986a, 1986b; Institute of Medicine 1990a, 1990b). In addition, recent attempts have been made to provide a more condensed overview of this exhaustive literature in order to glean the major findings from the research and highlight the direction that funding bodies should take in light of these findings. One of the most noteworthy overviews of the treatment literature was prepared by the Advisory Committee on Drug Treatment, which reported to the Minister responsible for the Provincial Anti-Drug Strategy in Ontario (Martin 1990). A second recent overview was prepared in Australia as part of the National Campaign Against Drug Abuse (Heather and Tebbutt 1989).

In the present overview of the international and Canadian literature, several issues in the evaluation of treatment effectiveness are first discussed. The major findings from key studies are then summarized under the following categories:

- treatment modalities;
- treatment context and duration;
- assessment and matching of clients to treat ment;
- relapse prevention and continuity of care; and
- systems issues in the delivery of treatment services.

This review then concludes by discussing the methodological challenges posed for the evaluation of treatment/rehabilitation programs.

General Issues in the Evaluation of Program Effectiveness

As noted by Heather and Tebbutt (1989), the fact that the question of whether treatment "works" has been seriously debated over the last two decades is a reflection of the state of uncertainty that exists in the field. Confidence in the effectiveness of treatment was reduced in the 1970s by a major review of research studies showing relatively poor outcomes from treatment, no apparent differences in the outcomes associated with very different methods of treatment, and traditional, intensive treatments seeming to be no more effective than only minimal contact with the client (Emrick 1975). Major reviews by Baekeland (1977) and Ogborne (1978) highlighted the importance of client characteristics as determinants of treatment outcome. A major research program by Moos and colleagues (e.g., Billings and Moos 1983) illustrated the importance of post-treatment factors such as stressful life events as predictors of outcome. In one major study (Orford and Edwards 1977) clients were asked what they regarded as the most significant factor contributing to their recovery. Such things as changes in their life situation (e.g., work, housing) or marital relationship were rated as being as more important than the actual treatment experience in inpatient or outpatient programs, Alcoholics Anonymous or other helping agencies.

Treatment providers and researchers offered a multi-faceted response to the pessimistic view of treatment that arose from these evaluation studies. One response was to call for better quality in the delivery of treatment, thus suggesting that treatment could indeed "work" if it was implemented properly. Another response was to call for better quality-controlled evaluations, while at the same time broadening the evaluation paradigm beyond the standard methodology of these clinical trials. A broader perspective concerning the goals of treatment also emerged and indicated the need for a wider range of criteria to measure improvement and program effectiveness. For example, Martin (1990) recently summarized three perspectives on the goals of alcohol and other drug treatment – recovery, harm reduction or care. A counselling program for intravenous drug users may be "ineffective" in achieving recovery or enduring abstinence from drugs, but "effective" in reducing the harm associated with this type of drug use. Finally, one of the most significant developments in the past decade has been the "matching hypothesis" which is grounded on the assumption that clients will respond differentially to different types of treatment and treatment goals. Thus, the failure in the past to show significant benefits of treatment over the natural history of alcohol or other drug problems may be explained, at least in part, by the failure of treatment programs to individually match clients to a treatment plan (Glaser 1980; Miller and Hester 1986b).

When summing up the literature on treatment effectiveness, the most recent reviews have concluded with a qualified "yes" to the question of whether treatment "works." The question, however, is now typically expanded to ask "which kinds of individuals, with what kinds of problems, are likely to respond to what kinds of treatments, by achieving what kinds of goals, when delivered by which kinds of practitioners?" (Institute of Medicine 1990a). While the answer to this considerably more complex question is still being developed, it is clear that the appropriate and specific treatment for alcohol and other drug problems can significantly improve outcome over that likely to be achieved on the basis of their natural history. A recent review by the Addiction Research Foundation (1990) concludes that, on average, 50-65% of individuals receiving treatment show improvement at follow-up. Of the group showing improvement, about one-half will have ceased all alcohol or other drug use or will have substantially reduced their consumption; the other half will have made major reductions in their level of consumption and significant improvements in other life areas but will not necessarily have all their alcohol- or other drug-related problems resolved. Recent economic analyses suggest further that the cost of providing treatment for alcohol is more than offset by the savings associated with reduced health care use (e.g., Luckey 1987; Holder 1987). Reviews of drug treatment programs such as methadone maintenance programs, therapeutic communities and outpatient counselling services also show the significant economic return on the investment in treatment (Institute of Medicine,1990b).

In summary, the weight of the research evidence has shifted from supporting a rather pessimistic view of treatment effectiveness to a cautious optimism based largely on a broader perspective of treatment outcome, an hypothesis concerning the individual matching of clients to treatment and analyses showing the good return on the investment in treatment from an economic point of view. Within this new-found optimism, however, the search continues for effective treatment methods for specific subpopulations, as well as for more general applications appropriate for a wide cross-section of clients. Of particular interest are treatment methods firmly based in theory, and which can be easily adopted by treatment providers. The next section provides an overview of the effectiveness of different types of treatment modalities.

Treatment Modalities

Pharmacotherapy

Any treatment that involves the administration of a drug in the process of treating alcohol or other drug problems falls under the general rubric of pharmacotherapy. Miller and Hester (1986a) reviewed three major alternative strategies for pharmacotherapy for the treatment of alcohol problems — antidipsotropic drugs, psychotropic medications and hallucinogens. With respect to drugs other than alcohol, pharmacotherapies typically apply to particular drugs of abuse such as methadone for the treatment of opiate dependence or despiramine for alleviating the cravings associated with withdrawal from cocaine.

Antidipsotropics are a class of drugs prescribed in order to cause an adverse physical reaction when consumed in conjunction with alcohol. The pharmacological deterrent results from the inhibition of aldehyde dehydrogenase (ALDH), the enzyme primarily responsible for the oxidation of alcohol to acetic acid. The psychological deterrent arises from the threat of experiencing the aversive reaction.

Disulfiram (trade name: Antabuse) is the most popular antidipsotropic used in the treatment of alcohol problems. When combined with alcohol, it produces a violently unpleasant reaction characterized by warming and flushing of the face, chest pains and pounding of the heart, nausea and vomiting, sweating, headache, dizziness, weakness, difficulty in breathing and a marked drop in blood pressure. Several recent controlled trials of disulfiram have failed to show benefits related to its use (Institute of Medicine 1990a). This lack of strong outcome data, coupled with the side-effects that accompany regular use, indicate that disulfiram should not be used as a routine adjunct to treatment. However, a controlled evaluation study by Azrin et al. (1982) suggests that the effectiveness of disulfiram may be augmented by providing training in adherence to the disulfiram regimen and other aspects of a behavioural compliance program.

Citrated calcium carbamide (trade names: Temposil, Abstem) and metronidazole (trade name: Flagl) are other antidipsotropic drugs that have been evaluated (e.g., Egan and Goetz 1968; Peachey et al. 1989). In their Canadian study, Peachey et al., used a placebo-controlled, cross-over clinical trial to investigate the effects of calcium carbamide on drinking behaviour and medical sequelae. They found that a regimen of calcium carbamide successfully reduced drinking in all patients completing a four-month program. However, alcohol consumption was reduced an equivalent amount between calcium carbamide and placebo conditions. This highlights the strong psychological deterrent of the drug regimen. Antidipsotropics now seem better suited to more selective than general application and as a component of a broader treatment strategy. The extent to which antidipsotropics can complement other approaches such as behavioural relapse prevention techniques is being explored (Peachey and Annis 1985).

Psychotropic drugs have been used to treat alcohol problems by influencing mental states and treating underlying psychopathologies such as anxiety or depression that are presumably causing the excessive drinking. However, no psychotropic medication has yet been shown in controlled evaluation studies to change drinking behaviour and, given the potential risk of abusing these drugs in addition to alcohol, their use should be discouraged (Heather and Tebbutt 1989). An exception to this conclusion is the use of diazepam (Valium) as an aid in the withdrawal of severe alcohol intoxication (see section below on Detoxification Methods). There is also some tentative evidence that certain antidepressants and lithium may minimally decrease the desire for, and consumption of alcohol, but the research to date is far from conclusive. At present, there is insufficient evidence to justify the use of antidepressants for clients with alcohol problems except for clients with signs of major depression or phobic anxiety that persist after abstinence from alcohol.

During the late 1950s through to the early 1970s, the use of lysergic acid diethylamide (LSD) for the treatment of alcoholism enjoyed a flurry of popularity. It was believed that problem drinkers would undergo an altered state of consciousness, which would help them to develop insight and break down defences. This would, in turn, make them more amenable to personality change. Although uncontrolled studies reported positive results, LSD's effectiveness was called into question on the basis of subsequent controlled evaluations. All recent reviews of this literature recommend that LSD and other hallucinogenic drugs no longer be used for treating alcohol problems (e.g., Miller and Hester 1986a).

Methadone is the most common treatment for opiate (heroin) addiction. It is a synthetic drug, which substitutes for other opiates and thereby prevents the onset of withdrawal. It is intended to stabilize the drug user while other lifestyle changes are slowly made that will support a drug-free lifestyle. Methadone remains the treatment of choice for opiate dependence on the basis of encouraging results from evaluation studies (Martin 1990; Institute of Medicine 1990b; Heather and Tebbutt 1989). These reviews all note that involvement in a methadone maintenance program is associated with higher retention in treatment, improvements in health, reductions in illicit drug use and, to a lesser extent, criminal activity. Recent evidence also suggests that involvement in methadone treatment leads to a reduction in injection drug use, thereby reducing the risk of HIV infection (Hubbard et al. 1988).

A wide variety of other drugs have been investigated as potential therapeutic agents for the treatment of drug problems and the reader is referred to other more comprehensive overviews of this literature (e.g., Heather and Tebbutt 1989). Some of these other drug therapies do show promise for specific conditions, such as the use of desipramine, a tricyclic antidepressant, to help reduce the intense cravings associated with the withdrawal from cocaine (Gawin et al. 1989). In general, however, these pharmacotherapies are not yet sufficiently supported by controlled evaluation studies to warrant general application.

Counselling and Psychotherapy

Quite different types of treatment for alcohol and other drug problems fit under the umbrella of "psychotherapy" and this has made it very difficult to summarize the range of studies in this area. Some authors view any form of treatment with a psychological orientation as qualifying as a form of "psychotherapy" (e.g., Emrick 1982). Such a definition is clearly too broad to be much use. In the major literature reviews by Miller and Hester (1980, 1986a) and Heather and Tebbutt (1989), it is argued that most psychotherapy for alcohol problems is derived from the psychoanalytic model and the term is used to refer primarily to insight-oriented, psychoanalytic therapy. In this model, alcohol or other drug problems are seen as a symptom of an underlying conflict (e.g., oral fixation, latent homosexuality) and it is the conflict rather than the symptom that should be treated. This differs from "counselling," which tends to be more directive, supportive, reality-centred, focused on the short-term, and oriented toward problem solving and behavioural changes. Unfortunately, the tendency for evaluation studies not to provide the details of the content and procedures of the psychotherapy or counselling make it difficult to summarize or compare studies in terms of relative effectiveness.

Different approaches have been used to evaluate the effectiveness of psychotherapy for alcohol problems including, for example, evaluating it as an adjunct to standard inpatient treatment (Levinson and Sereny 1969; Pattison et al. 1967) or as a type of outpatient treatment (e.g., Kissin et al. 1970), sometimes combined with disulfiram (Bruun 1963). Other studies have compared different approaches to psychotherapy such as an early study by Ends and Page (1957) comparing client-centred and psychoanalytic groups, or that by Pomerleau et al. (1978) comparing insight-oriented or behaviourally oriented therapy groups.

The following conclusions were drawn from the comprehensive review of this literature by Miller and Hester (1986a):

- the majority of studies found no differences between those receiving versus not receiving psychotherapy;
- in several studies the existing differences favoured those not receiving counselling or psychotherapy; and
- those studies that reported an advantage for psychotherapy relative to controls did not use random assignment, lacked adequate outcome measures of drinking or showed minimal differences at best.

Heather and Tebbutt (1989) note further that psychotherapy is usually a long-term undertaking and the current research on longer versus shorter interventions tends to favour the shorter options in terms of cost-effectiveness.

Psychotherapy has been evaluated as a treatment option for drug abuse, typically opiate addiction, and often as an adjunct to pharmacological-based treatment. It is sometimes argued that psychotherapy may be particularly appropriate for drug abusers since they have such a high incidence of psychopathology (Rounsaville and Kleber 1985). Too few controlled evaluations have been undertaken to draw general conclusions and the results have been inconsistent between the two experimental studies that have been undertaken. Woody et al. (1987) compared methadone maintenance and drug counselling with a program combining the same methadone maintenance and drug counselling regimen with either supportive-expressive psychotherapy or cognitive-behavioural psychotherapy. At seven months, both groups that received psychotherapy showed decreased dosages of methadone and other psychotropic medicines, and fewer opiate-positive urine samples than the group that did not. Further, clients with high levels of psychopathology improved in several other ways if they received the additional therapy. In contrast to these results, however, the controlled study by Rounsaville et al. (1986), with a similar population, found no significant advantage to adding short-term interpersonal psychotherapy to standard methadone maintenance, even for those patients with clear evidence of psychopathology. Indeed, depressed clients seemed to improve more slowly if given psychotherapy and there were major problems experienced in attracting and retaining clients in the therapy groups.

Thus, despite the expectation that psychotherapy would benefit clients with alcohol and other drug problems, controlled evaluation studies tend not to support the efficacy of this approach. The possibility still remains that people with certain types of alcohol or other drug problems may benefit from this kind of treatment, specifically those with particular types of psychopathology. However, further research is needed in this area. On the basis of available data, psychotherapy is not to be recommended for general use, especially given the complexity of the treatment, the need for highly trained counsellors and the duration and cost of treatment.

Therapist effects. While data showing positive effects of psychotherapy and counselling are limited, it is possible that therapist characteristics (e.g., attitudes, beliefs, personality characteristics, training, experience, behaviours, style, empathy, commitment, therapeutic perspective) are a significant factor in determining treatment outcome. Cartwright (1981) questions the assumption that the individual therapist has little or no part to play in the treatment of alcohol problems and suggests that therapist factors may be as important in this field as they are in psychotherapy generally. The current literature is somewhat limited in the extent to which it shows the importance of therapist factors, since these factors are not usually described in detail, and because they have rarely been evaluated in an experimental paradigm.

In one study looking at counsellor variables, patients with alcohol problems were randomly assigned to one of eight counsellors (Valle 1981). Treatment included individual and group counselling, didactic lectures, A.A., psychological evaluation, recreational therapy and daily consultation with doctors. Counsellors were responsible for coordinating all the services for their patients and had the most direct contact with them. Counsellors were assessed for their levels of empathy, genuineness, respect and concreteness in their responses to several statements approximating actual counsellor-patient interactions. Results showed that the higher the level of interpersonal functioning of the counsellor, the less likely were patients to relapse and the fewer times patients did relapse at 6, 12, and 24 months' follow-up.

Luborsky et al. (1985) found large differences in outcome across nine therapists providing the three interventions in their controlled trial of psychotherapy for methadone clients. The quality of the therapist-client relationship was the most important factor explaining differences between therapists. In another study of clients in a methadone program, performance in treatment differed significantly across therapists, independent of client characteristics (McLellan et al. 1980). Therapists who were more systematic and detailed in describing therapeutic progress, followed a detailed treatment plan, attempted to anticipate and prepare for problems, adhered to program procedures and saw clients more faithfully, seemed to be more effective.

In the recent review of the treatment literature by the Institute of Medicine (1990a) the contribution of therapist effects to positive outcomes was thought to be underrated. Overall, the limited research that is available suggests the therapist's competence, skill and empathy with the client contributes significantly to treatment outcome.

Alcohol and Other Drug Education

One of the most common features of alcohol and other drug treatment programs is an educational component. This usually involves lectures, films, readings and/or discussions about alcohol, drugs, alcoholism and drug addiction. This educational approach is based on the assumption that people experiencing alcohol and other drug problems are uninformed and that education will assist in changing their behaviour and reducing these problems. As noted by Miller and Hester (1986a), there is a parallel here between "treatment" and "prevention," with the distinction being the level of current problem development among those being educated.

In the preceding chapter concerning early intervention programs, educational programs for persons convicted of impaired driving were reviewed. The results from the controlled evaluations of this population are mixed and provide no definitive evidence of sustained behaviour change (Nichols et al. 1978; Foon 1988). There has been very little evaluation of educational approaches *within* more traditional treatment regimes. Stalonas et al. (1979) compared three alternative methods of education (videotape, live lectures or reading written presentations) and found that participants in all three groups returned to baseline levels of knowledge at follow-up. The study did not include a no-education control group.

In summary, controlled evaluations have not provided strong support for the effectiveness of alcohol and other drug education in changing drinking or drug-taking behaviours and related problems. The widespread adoption of the educational approach to treatment is thus highly questionable in light of this very limited research evidence.

Confrontation

There is almost universal acceptance that people with alcohol and other drug problems must be confronted with the reality of these problems and that it is therapeutic to do so. Although the literature contains an exhaustive description of different methods of confrontation, Miller and Hester (1986a) were unable to find one controlled evaluation study of confrontational counselling with people with alcohol problems. There is some evidence that a hostile-confrontational style of leadership in group therapy may produce more negative outcomes than other styles of leadership (Lieberman et al. 1973). Legitimate concerns may be raised, for example, about the potential of this approach for precipitating drop-out and lowering self-esteem.

In their review, Miller and Hester (1986a) point out that confrontational approaches need not always be a strategy of coercion or extrinsic control. "Confrontation" also includes the use of feedback about health status or the use of videotapes to show individuals their behaviour when intoxicated. Providing feedback about health status to early stage problem drinkers has been shown to be a successful strategy for early intervention and a significant study in this area was discussed in the preceding chapter (Kristenson et al. 1983). Studies assessing the effects of videotape self-confrontation have found no significant long-term effects on drinking behaviour associated with this approach (e.g., Baker et al. 1975; Schaefer et al. 1972). Clinical reports suggest that the experience is quite stressful, leading to depression and lowered self-esteem. Research also shows that the approach contributes to a high rate of relapse after treatment (Feinstein and Tamerin 1972) and a higher rate of drop-out (Schaefer et al. 1971).

In summary, minimal feedback about the effects of alcohol on health status can significantly affect the behaviour of people just beginning to experience alcohol problems. However, other confrontational counselling or behavioural techniques have little empirical support from controlled evaluation studies and, if used, have the potential for producing several negative outcomes.

Marital and Family Therapy

Alcohol and other drug problems influence, and are influenced by, the individual's family situation. Treatment programs that provide marital and family therapy use a variety of approaches, typically within a family systems perspective (e.g., Steinglass 1979). Some treatments involve meetings with the entire nuclear family, while others involve only the couple, only the spouse, or all family members except the substance abusers. Some treatment approaches target not only the drinking or drug-taking behaviours but also the patterns of family communication and interaction. Family therapy is widely recommended for young people with drug problems (Coleman and Davis 1978), using either a systems or behavioural approach (Bry 1988).

Most of the research on marital and family approaches to treatment has been concerned with problem drinkers; few studies have focused on the value of these approaches for people with other drug problems. Miller and Hester (1986a) reviewed four controlled evaluations of marital and family therapy and found sufficiently positive findings, especially over the short-term, to suggest it as a worthwhile adjunct to other treatment. In one study, for example, McCrady et al. (1979) compared joint inpatient admission of the problem drinker and spouse with outpatient involvement of the spouse and no involvement of the spouse. At a six-month follow-up, both groups with spouse involvement showed significant decreases in drinking compared to controls. However, at a subsequent four-year follow-up (McCrady et al. 1982), the differences between groups had disappeared. Positive but transient short-term effects over a six month period were also observed in a study by O'Farrell et al. (1985). This study compared two styles of conjoint therapy (behavioural vs. interactional) with individual outpatient counselling. The group receiving behavioural conjoint therapy showed the largest short-term gain.

A more recent study by McCrady et al., (1986), compared the effectiveness of three types of spouse involvement in outpatient behavioural alcoholism treatment. Couples were randomly assigned to one of three treatment conditions: i) minimal spouse involvement; ii) alcohol-focused spouse involvement; and iii) alcohol-focused spouse involvement plus behavioural marital therapy. Treatment in all conditions consisted of fifteen 90-minute sessions. In the first condition, the spousal role was restricted to being understanding and supportive of the problem drinker. In the second condition, the spouse was also taught how to reinforce abstinence and a number of other skills, using role-playing and covert rehearsal. In the third group, marital interventions were also included. Subjects in all three conditions had positive treatment outcomes, with significant decreases in frequency of drinking, increased satisfaction with their lives, and increased marital satisfaction, sexual activity and job stability. Of the three groups, the one receiving marital therapy had somewhatbetter outcomes on, for example, drinking status and marital satisfaction.

Collectively, these data suggest that behaviourally oriented family and marital therapy is a worthwhile adjunct to treatment for alcohol problems, at least in the short-term. In an important Canadian study, Zweben et al. (1988) undertook a controlled trial to compare the effectiveness of a systems-based outpatient program consisting of eight sessions of conjoint counselling to a single session of "advice counselling," which also involved the spouse. Drinking goals were defined as either moderation or abstinence and a range of other outcome measures were also employed (e.g., marital adjustment). Follow-up contacts extended over an 18-month period. No differences were found between the two treatments, which clearly differed in scope and intensity. However, the results showed that both groups reduced their drinking, had more abstinent days and were improved on the measures of marital adjustment. Thus, the study supported the role of the spouse in the treatment process but did not show the value of extending this involvement over a long period of time in an extensive conjoint therapeutic process.

Despite the promising literature for the treatment of alcohol problems with family and marital therapy the data are more limited with respect to the treatment of other drug problems. In one well-controlled study of drug abusers (adult male heroin addicts) family therapy was shown to be more effective than either individual therapy or a control group (Stanton et al. 1982). As noted by Martin (1990) the effectiveness of family therapy is not well-established for young people with drug problems since the evidence from the few studies of family therapy with this population is inconclusive. Thus, broad generalizations about the value of family and marital therapy from the few studies of adult problem drinkers are not appropriate at this time.

Behaviour Therapy

There are a number of specific behaviour therapy methods that have been utilized in the treatment of alcohol and other drug problems.

Aversive therapy: This approach to treatment attempts to suppress drinking behaviour by creating an aversion or distaste for alcohol. It is based on classical conditioning procedures in which alcohol is repeatedly paired with unpleasant experiences. It should be kept distinct from the use of antidipsotropic drugs, such as disulfiram, which is based on the suppression of drinking by the fear of immediate unpleasant consequences.

In aversive therapy for the treatment of alcohol problems, conditioned stimuli are the sights, smells and tastes of alcoholic beverages, and the unconditioned stimuli have been nausea-producing drugs (chemical aversion therapy), electric shock (electrical aversion therapy), or visualized unpleasant experiences (covert sensitization therapy). If the conditioning is successful, the individual shows an automatic negative response when later exposed to alcohol alone.

In the 1940s, a series of studies in Seattle found very positive results using nausea induced by emetine as the conditioned response to the exposure to alcohol. (Voegtlin et al. 1941). However, the use of a highly selected and very socially stable population may have accounted for the positive findings. In their comprehensive review of the literature published since the 1940s, Miller and Hester (1986a) found mixed results with the weight of the evidence suggesting a small but consistent increase in abstinence rates at six-month follow-up. Reduced consumption and minimized urges to drink appear to be more common outcomes than total abstinence. Further, nausea-based techniques seem to be more effective than approaches based on electric shock. Overall, the evidence suggests that chemical aversive therapy can play a role as part of a multimodal treatment program, especially for socially stable, highly motivated problem drinkers. There have been no controlled evaluations of chemical or electrical aversion therapy with individuals with other drug problems.

The third type of aversive therapy, known as "covert sensitization," has been studied with problem drinkers. With this type of treatment, verbally guided images concerning alcohol and drinking are associated with imagined nausea, vomiting and other unpleasant experiences. Miller and Hester (1986a) found promising results in some controlled evaluations (e.g., Elkins 1980). The inconsistency in results in much of the remaining literature probably lies in variations in the methodology and degree of conditioning actually achieved among the research subjects. Covert sensitization is now preferred over other aversive techniques since it is less painful and dangerous. In addition, it can be administered on an outpatient basis and allows for more generalization beyond the treatment program to the home environment. As with the other types of aversive therapies, there have been no controlled evaluations of covert sensitization with drugs other than alcohol.

Hypnosis bears close resemblance to covert sensitization as a treatment procedure, although it actually applies to many different therapeutic methods, ranging from posthypnotic suggestion to induced aversion. There have been few controlled studies of the effectiveness of hypnosis. The weight of the evidence, however, from the more methodologically sound studies suggests that this approach offers no particular advantage over other types of treatment (e.g., Jacobson and Silfverskiöld 1973). The variability in hypnotic procedures may account for the inconsistency in the research findings, thus rendering it impossible to assess the value of such procedures in the treatment of alcohol problems at the present time.

BAC Discrimination Training: Blood alcohol concentration (BAC) is frequently used as a measure of level of intoxication. Information regarding the relationships among alcohol consumption, BAC and behavioural effects has been a component of many treatment programs for problem drinkers. There are two main approaches to teaching people to estimate their BACs, one relying on internal cues, and the other external cues. The term "BAC discrimination training" is generally used to refer to the former. In this training method, individuals consume alcoholic beverages and, while attending to proprioceptive and other internal cues, receive feedback about their BAC level. In this manner they learn to associate particular internal cues with specific BAC levels. The feedback is often from a breath-alcohol analyzer. Ultimately, the individual is supposed to be able to determine his or her BAC without such feedback. Evaluations of internal cue training have shown mixed results, with the more positive findings obtained for early stage problem drinkers than chronic alcoholics (Miller and Hester 1980).

With respect to external cue training, individuals are provided with a table or a calculation device for estimating their BAC based upon the amount of alcohol consumed, time elapsed, sex and body weight. It has been included as a component of several multimodal treatment programs, and reported improvement rates have been comparable to, or better than, those that include internal cue procedures (Miller and Hester 1980). External cue training is preferable to internal cue training because it is less expensive and seems to be at least as effective. However, the practical value of including the training in the treatment of alcohol problems has not been conclusively established and further research is needed to determine whether certain types of alcoholics and problem drinkers can benefit from this approach.

Cue Exposure: In this relatively new behavioural approach, tolerance, withdrawal and craving are viewed as conditioned phenomena and therefore subject to extinction by exposing problem drinkers to cues for drinking while discouraging or preventing them from doing so. A major type of cue exposure procedure is to give seriously dependent problem drinkers a strong "primary" dose of alcohol but then prevent further drinking in the presence of alcohol-related cues such as holding the glass and smelling the alcohol. One controlled evaluation of this procedure, with a small number of subjects, has found encouraging results (Rankin et al. 1983). A similar type of approach has been tested with opiate users and has shown the promise of this method at reducing the craving for heroin (Childress et al. 1986). Considerably more research is needed to test the effectiveness of cue exposure methods in the treatment process and the prevention of relapse.

Contingency Management: Unlike the behavioural approaches discussed above, which are based on the classical conditioning paradigm, the behavioural approach to treatment also incorporates principles of operant conditioning as developed originally by B.F. Skinner. Based on these principles, the treatment program attempts to change the reinforcement contingencies in the environment that is helping to shape and maintain problem drinking or other drug-taking behaviour.

Miller and Hester (1980) reviewed several studies conducted in tightly controlled experimental situations that showed the drinking behaviour of even seriously dependent problem drinkers can be modified by changing the environmental consequences. For example, a series of studies conducted by Bigelow and colleagues (e.g., reference check Miller and Hester 1980) showed that problem drinkers will reduce their consumption of alcohol if they are punished for drinking by being restricted to an "impoverished" environment, or by being isolated from social contact.

The manipulation of environmental contingencies has also been used to increase compliance with a treatment program. Bigelow et al. (1976) for example, found that a financial program of contingency management increased compliance with a disulfiram regime.

The community-reinforcement approach developed by Hunt, Azrin and colleagues (Hunt and Azrin 1973; Azrin 1976) represents the most extensive, and the most successful application of contingency management to the treatment of alcohol problems. The approach is structured in such a way as to discourage drinking behaviour, while at the same time providing support in a number of areas of an individual's life, including family and marital relations, employment, and social skills. The purpose of the approach is to change the social contingencies that encourage or discourage drinking. By rearranging the problem drinker's social environment so that other more reinforcing activities compete with drinking behaviour, the hope is that the individual will reject alcohol as a reinforcer because of the resulting loss of so many other reinforcers.

The original CRA program was very broad, including job counselling, problem-solving training, behavioural family therapy and social counselling, and it required an average of 50 hours of individual counselling per client (Hunt and Azrin 1973). Azrin introduced an "improved" CRA in 1976 to include disulfiram to inhibit impulsive drinking; enlisting the spouse's help for its continued use; the use of a daily mood rating to help anticipate possible relapses; the use of neighbourhood friend-advisors; and the replacement of individual by group counselling. These changes reduced the required time from 50 to 30 hours per client.

The outcome studies on CRA are among the most methodologically sound and the most encouraging in the treatment literature. A study comparing standard hospital treatment to the enhanced CRA showed significantly different outcomes favouring the CRA program (Azrin 1976). Another study, this one with outpatient clients only, and as an adjunct to disulfiram also showed encouraging results (Azrin et al. 1982). In these studies, the CRA has been shown to have a dramatic impact on drinking behaviour and social adjustment, and these gains are maintained for at least 24 months. Some of the specific aspects of the CRA, such as attendance at a non-drinkers' social club, have been evaluated and shown to be effective in reducing drinking (Mallams et al. 1982). The full CRA seems to be especially beneficial to those with fewer social supports and more chronic drinking problems (Azrin et al. 1982).

Despite the strong evidence for the effectiveness of the community reinforcement approach with both inpatient and outpatient populations, it is not widely known and only infrequently used. The full program may be too broad and expensive for routine application. However, the basic principles of contingency management used in the program should probably be more widely incorporated into treatment programs. Research to date suggests that this approach makes a valuable contribution to the treatment of alcohol problems, and it deserves further implementation and evaluation. Contingency reinforcement approaches have also shown promise in the treatment of opiate dependence (Hall et al. 1979).

Broad-spectrum Treatment: The major reviews of the alcohol and other drug treatment literature include a range of treatment approaches under the general rubric of broad-spectrum treatment (Miller and Hester 1986a; Heather and Tebbutt 1989). Broad-spectrum treatment generally refers to an approach whereby each client's particular problems are assessed to determine the specific antecedents and consequences of drinking or other drug-taking with a range of interventions then made available to assist in dealing with these problems. Although the broad-spectrum approach has not been evaluated in its entirety, some of the interventions that are typically included have been researched. These include skills training (e.g., social skills, problem-solving skills), stress management and relaxation training.

People experiencing problems with alcohol often appear to be deficient in social skills. Research has indicated that social skills training is of benefit in the treatment of alcohol problems and has suggested further, that useful components of this training include assertiveness training, group training with skills practice sessions, and cognitive restructuring.

Most research has been conducted on assertiveness training with consistently positive findings as in a Canadian study by Freedberg and Johnston (1978a). The cognitive restructuring approach involves teaching clients to examine distorted or irrational beliefs and modifying them in appropriate ways. Oei and Jackson (1980) evaluated a social skills training program for problem drinkers who were low on assertiveness skills. Subjects were assigned to one of four conditions: a) social skills training, in which skills were taught but no attempt was made to change cognitive attitudes and beliefs; b) cognitive restructuring, in which rational persuasion was used to impart information and to change irrational beliefs; c) a combination of the two strategies; and d) traditional supportive therapy, which served as the control group in which patients were encouraged "to explore themselves mentally." Results showed that the combined social skills/cognitive restructuring method obtained better outcome at a one-year follow-up in terms of social skills and reduced drinking. Outcomes associated with all the behavioural approaches were better than those obtained with the supportive therapy.

Chaney et al. (1978) evaluated a skills training program that combined some of the common elements of assertiveness training with training in problem-solving to deal with high risk drinking situations. The experimental group was given the opportunity to practice and get feedback about their new skills. Compared to two different control groups — one receiving therapy sessions to discuss their feelings about high risk situations and one receiving regular hospital treatment — the skill level of the experimental group improved significantly on a range of outcome measures at a one-year follow-up. This finding is consistent with what would be expected from social learning theory where "performance-based" methods (e.g., practice and rehearsal) are likely to be more effective than "verbally-based" methods (e.g., psychotherapy and counselling).

In Canada, Sanchez-Craig and colleagues at ARF Toronto have described strategies for teaching coping strategies, including cognitive restructuring and the covert rehearsal of adaptive behaviours (Sanchez-Craig 1975; Sanchez-Craig 1976; Sanchez-Craig and Walker 1974; Walker et al. 1974). The cognitive-behavioural program included teaching subjects to identify risk situations and their competencies in dealing with these situations, to develop behavioural and cognitive coping strategies, and to objectively assess their progress. This program was found to be effective in reducing drinking behaviours for subjects assigned to both abstinence and controlled drinking conditions (Sanchez-Craig et al. 1984). Research has also suggested that this cognitive-behavioural program may be more effective than either a cognitive or behavioural approach alone (Sanchez-Craig and Walker 1974).

In an uncontrolled follow-up study, Brown and Thompson (1990) evaluated a social skills training program at the Lander Treatment Centre in Alberta, which was designed for individuals rated as substantially or severely dependent on alcohol or other drugs. The program sought to achieve abstinence in participants by increasing their understanding of addiction and its effects on themselves and others. As well, the program attempted to improve their self-esteem, personal relationships and social functioning, and train them in relapse prevention techniques. Treatment was two weeks in length, with a one-week aftercare program offered six weeks after treatment completion. Follow-up results at three months indicated that the majority of participants reported either being abstinent, or abstinent with one relapse. Participants reported an increased understanding of addictions and were largely successful in identifying high risk situations and using relapse prevention techniques.

Another common component of the broad spectrum approach is stress management since stress has often been hypothesized as an antecedent of drinking and relapse. Both *relaxation therapy* and *systematic desensitization* have been subjected to controlled evaluations with problem drinkers. Miller and Hester (1980) noted that relaxation training has been used for four main purposes: to help people reduce their overall level of physiological arousal; to reduce their craving to drink; to help them sleep more easily; and to help them handle specific environmental factors which result in "anxiety." It is the use of relaxation training for this last purpose that is referred to as "systematic desensitization."

Evaluation studies of relaxation training have tended to use only physiological measures of relaxation, rather than measuring effects on drinking behaviour. Some controlled studies that have included drinking behaviour among the outcome measures have shown small, positive effects from the addition of relaxation training to other forms of treatment. For example, Blake (1967) found that electrical aversion combined with relaxation training was slightly more effective than electrical aversion alone. In a Canadian study Freedberg and Johnston (1978b) compared the outcome of a group given relaxation training as a supplement to regular inpatient treatment to that of a control group receiving only the latter. At one-year follow-up, no differences were found on the drinking measures, although the relaxation group had significantly better outcomes on measures of employment, depression and relaxation. Other controlled evaluations (e.g., Sisson 1981) have found no impact on drinking measures of a relaxation intervention. The inconsistency in these findings may be due to the poor differentiation of clients in terms of the severity of their anxiety problem. In a study by Rosenberg (1979) clients were grouped into high versus low anxiety sufferers and only the former were found to reduce their drinking significantly following biofeedback relaxation training. This speaks to the need to match client needs to the specific component of this broad spectrum approach.

Systematic desensitization is a technique in which a relaxed state is paired with specific environmental stimuli or scenes which usually result in tension or anxiety. Treatment is considered to be successful when the patient is able to remain relaxed while imagining the stimuli or scene which would have been the most stressful before treatment. Treatment is sometimes extended to include the client actually engaging in the behaviours while remaining relaxed, rather than just imagining them. There has been only very limited evaluation of this technique for the treatment of alcohol problems and several studies have been marred by very high drop-out rates. However, the reviews by Miller and Hester (1980; 1986a) suggest there is reason for cautious optimism and its inclusion in multimodal treatment programs should be considered. As with the other components of a broad-spectrum approach, relaxation training and systematic desensitization should be used selectively, according to the needs of the client, rather than provided indiscriminately to all clients entering treatment.

Behavioural Self-Control Training: Behavioural self-control training (BSCT) is often referred to as self-management training. Although the training may vary from setting to setting, it usually includes an educational component designed to assist individuals in attaining a controlled level of drinking. It is offered on an outpatient basis and is amenable to a variety of formats including individual, group and/or bibliotherapy. Heather and Tebbutt (1989) describe the common features of BSCT across different versions of this approach. Clients are first instructed in the accurate monitoring of their drinking. Their drinking situations are then analyzed to identify antecedents of excessive drinking, leading to the development of a set of rules for future drinking (e.g., times, locales, companions). The client is also taught strategies for keeping these rules.

A series of controlled evaluations by Miller and colleagues provides very positive evidence for the effectiveness of this approach for early stage problem drinkers (Miller 1978; Miller and Taylor 1980; Miller, Taylor and West 1980; Miller, Gribskov and Mortell 1980; Miller and Baca 1983). All of these studies compared the BSCT approach with more extensive therapist-directed interventions and found them to be equal in effectiveness. Comprehensive reviews of this literature, and a wide range of studies by other researchers around the world have documented the consistent and very conclusive evidence regarding the BSCT approach.

Most of the approaches to behavioural self-control training include "bibliotherapy" or the use of a "self-help manual" to assist the client in monitoring drinking, setting goals, etc. This strategy clearly has the potential to reach a large segment of the population experiencing alcohol problems.

Some of the studies by Miller and colleagues used a self-directed, bibliotherapy version of the BSCT approach and found it to be as effective as its therapist-directed counterpart. For example, Miller, Gribskov and Mortell (1981) compared the effectiveness of a self-control manual with different degrees of therapist contact. Thirty-one self-referred problem drinkers were randomly assigned to one of two conditions for a 10-week treatment program. In the first condition, there was minimal therapist contact, with clients participating in one assessment interview and then being given a self-help manual, self-monitoring cards, and 10 stamped and addressed envelopes for returning data cards to the clinic on a weekly basis. Therapists maintained only brief telephone contact to encourage clients to return the cards. In the second condition, clients were given the same intake interview, manual, and data cards, but they also met weekly with a paraprofessional therapist for 30- to 45-minute sessions, which focused on the material in the self-help manual. There was a marked drop in alcohol consumption during the first week compared to pre-treatment levels, and consumption continued to decline in the course of treatment, levelling-off at follow-up. A decrease in peak BAC paralleled that observed for alcohol consumption. There was no difference between the two treatment modalities in terms of outcome. The total improvement rate was 87%, higher than what one would expect for non-treated individuals.

Heather (1986) evaluated the effectiveness of self-help manuals provided to problem drinkers recruited through national and local media in Scotland. Each respondent to a printed advertisement was sent either a self-help manual or a general information and advice booklet on alcohol problems. The former included information on the effects of alcohol, reasons for drinking, instruction in self-monitoring and self-reinforcement, advice on drinking rate reduction, and instruction on relapse prevention. A list of agencies was included for those who might need more personalized help. The control booklet, by contrast, contained no specific instructions on how to reduce drinking, but it did include a list of addresses subjects could use to get further help if needed. Attrition to both the experimental and control groups was very high, and in the latter stages of the one-year follow-up, significantly higher for the control subjects. At six months, the group receiving the self-help manual showed a significantly greater reduction in consumption than the control group. The self-help group also showed significantly greater improvements in health and control of drinking problems. At the one-year follow-up, excluding subjects who had received any other form of help since the last contact, the difference in absolute reductions in consumption between conditions was still significant, and the manual group also showed greater improvements in social interaction and fewer marital problems. The gains that had been made at six-months were retained. Serious problem drinkers reduced consumption by at least as much as less serious drinkers at both six months and one year.

Several studies exist that include the basic elements of BSCT within more complex treatment programs. For instance, Ewing and Rouse (1976) incorporated elements of BSCT training with electrical aversion therapy and couples therapy. Sobell and Sobell (1973a) incorporated elements of BSCT in a behaviour therapy program which included aversive conditioning. The structure of these programs and their evaluations make it difficult to determine the relative contribution of BSCT.

In general, studies examining the effectiveness of BSCT have found that it compares favourably with other, more extensive treatment approaches when applied to less severe problem drinkers with moderate drinking as the goal. On the other hand, when given to severely dependent problem drinkers, findings have generally been negative. Miller and Baca (1983) found that the probability of moderate drinking was inversely related to the severity of alcohol involvement. There is considerable support in the current literature for the view that moderate drinking is not a realistic long-term goal for people who are severely alcohol-dependent (see for example Foy et al. 1984). However, consensus on this issue has not yet been reached in the field since some research shows the BSCT approach to be helpful even for serious cases (e.g., Heather 1986).

In Canada, Sanchez-Craig and colleagues (1984) combined BSCT with cognitive training and found it to be effective for subjects with either abstinence or controlled drinking goals. Another study randomly assigned problem drinkers to three treatments: three sessions of advice using a pamphlet; three sessions of instruction with a self-help manual; and six or more sessions of instruction on the self-help manual from a therapist (Sanchez-Craig et al. 1989). The number of heavy drinking days was significantly reduced for all three groups. However, at one-year follow-up, females were more successful in reducing their consumption than males in all conditions.

Alden (1978) implemented a preventive self-management program for problem drinkers in Vancouver, based on Miller's BSCT program. Subjects were assigned to one of two treatment conditions. In one, they were taught to monitor their drinking and factors surrounding drinking, and to calculate their BAC. They were then asked to select an absolute BAC level, before being taught to stay below their self-selected limit. In an enriched program, subjects were also given the opportunity to learn additional techniques, such as relaxation training and assertiveness training, to help them cope with the stress related to drinking. All subjects met with their individual counsellor for two intake sessions and 10 weekly treatment sessions. Subjects in both groups showed significant decreases in the frequency and quantity of drinking at termination. However, the groups differed in their rates of "hazardous drinking," defined as consuming more than 12.5 oz. of absolute alcohol per week or if clients violated their self-selected BAC goals more than once per week. Those in the enhanced program showed an 88% non-hazardous rate, while those in the basic condition exhibited a 57% non-hazardous rate, a significant difference.

Alden (1988) describes the development of a treatment clinic for early stage problem drinkers and the program's evaluation, which examined recruitment issues and the comparative effectiveness of different treatment strategies. Problem drinkers were recruited from the general population and randomly assigned to either a waiting-list control condition or one of two 12-week treatment programs — behavioural self-management or supportive, developmental counselling. Participants were followed up for two years. The evaluation data showed that the program successfully attracted a group of non-dependent problem drinkers reporting heavy alcohol consumption and associated life problems. Individuals who completed either of the two 12-week programs reported significant improvement on most outcome measures, including consumption, relative to those receiving no treatment. The equivalence across some aspects of the two treatment strategies may explain the data showing them to be equally effective. For example, in both treatments, clients self-monitored consumption at the beginning and end of treatment, discussed their drinking patterns and other life problems with an empathic counsellor and established some type of treatment goal. However, ongoing self-monitoring, BAC computation, and other behavioural self-management strategies did not appear to contribute to overall treatment effectiveness beyond supportive counselling and individualized goal-setting.

At least two additional evaluations of the effectiveness of self-help manuals for non-dependent problem drinkers are currently under way in Canada (Evans 1989; Ogborne 1989).

Findings to date suggest a potential cost-effectiveness advantage of using BSCT methods over more extensive and costly treatment methods for individuals with less severe drinking problems. More research is needed to determine which specific elements of the approach are necessary and sufficient to produce improvement in drinking behaviours. There is little doubt, however, that the BSCT has potential for teaching moderate drinking strategies and is therefore a major component of early intervention programs (see also Chapter 3).

Motivational Interviewing: This relatively new behavioural approach to treatment is based on one of the simplest yet most influential models of behaviour change that has been applied to the alcohol and other drug field. At its most basic level, the model of change developed by Prochaska and di Clemente (1986) describes four stages of change that people must progress through in order to change addictive behaviour — precontemplation, contemplation, action and maintenance. Heather and Tebbutt (1989) point out that most treatment interventions are concerned with the "action" stage whereby a variety of strategies and techniques are offered to the individual to assist him/her in actually instituting a change in behaviour. Motivational interviewing is a term used by Miller (1983) to describe an approach that emphasizes motivating the client to move through the precontemplation and contemplation stages. It recognizes that the client's motivation for treatment derives from the interaction of the client and the treatment provider rather than solely from some personality trait or inadequacy of the client. The approach focuses on individual responsibility for change, contrasts current behaviour with its negative consequences (i.e., cognitive dissonance) and uses empathic listening and feedback from objective assessments to change behaviour on the basis of this cognitive dissonance.

Recently, Allsop et al. (1988, cited in Heather and Terbutt 1989) combined this motivational interviewing approach with an assessment of high risk relapse situations and problem solving skills training. At a six-month follow-up, individuals receiving this combined program had a better outcome than control groups receiving either no treatment or group discussion only. Although promising, there is as yet no evidence from controlled evaluations about the effectiveness of motivational interviewing in and of itself, especially compared to more traditional confrontational approaches to dealing with client motivation.

In summary, this section has reviewed research concerning the effectiveness of a wide range of behavioural approaches to the treatment of alcohol and other drug problems. Although the behavioural approach embodies many different treatment strategies in and of itself, it has received more support from evaluation studies than any other general orientation to treatment (Heather and Tebbutt 1989). Results of studies concerning aversive conditioning, behavioural self-control training, cognitive-behavioural methods, contingency management, and some elements of the broad-spectrum approach have been particularly encouraging for certain segments of the population in need. Other approaches such as cue exposure and motivational interviewing also appear promising since they are firmly grounded in theory.

The Canadian contribution to this evaluation literature has been substantial as exemplified by the work of Sanchez-Craig, Annis and their colleagues in Toronto and other selected evaluations (Alden 1978; Freedberg and Johnston 1978a, 1978b). The work of the Sobells, now with ARF in Toronto, has also added significantly to this area of study, both through individual evaluation studies (e.g., Sobell and Sobell 1973b, 1976) and conceptual and theoretical contributions (e.g., Sobell and Sobell 1978, 1987).

Self-Help Groups

Programs such as Alcoholics Anonymous (AA), Narcotics Anonymous (NA), and Cocaine Anonymous (CA), provide community-based support for people with alcohol and other drug problems. Similar support also exists for the families of these individuals (e.g., Al-Anon and Alateen). AA is the most well-established and widespread self-help group having chapters in over 90 countries and over half a million active members. It is also an integral part of many alcohol treatment programs. All chapters use the same basic reference materials, follow similar meeting formats, and are run by recovering alcoholics. There is certainly widespread confidence in the use of AA and a strong belief among health, social and correctional service professionals that many who have joined AA achieve sobriety with it alone or through a combination of treatment and AA (Miller and Hester 1980). Although many anecdotal reports attest to the effectiveness of AA, its efficacy has not been established through controlled evaluation studies. Some feel that the characteristics of AA preclude its scientific evaluation (Bebbington 1976). Other researchers recognize the difficulties, but are more optimistic about the potential for good evaluation studies (Bradley 1988).

There have been three controlled studies of AA. Brandsma et al. (1980) recruited subjects primarily from the court system and randomly assigned them to either AA, insight therapy, professionally delivered rational behaviour therapy, self-help rational behaviour therapy, or a control group which could make their own arrangements for treatment in the community. Of the 197 subjects who began treatment, 104 completed at least ten sessions and provided data on some of the outcome measures. All subjects were severe problem drinkers and all treatment was on an outpatient basis. All treatment groups showed more improvement that the control group, with the magnitude of the difference decreasing over time. The key findings with respect to the effectiveness of AA were that of the four treatment groups, (1) AA showed the highest drop-out rate (68% vs. 57% for the other groups); and (2) subjects in the AA group appeared to show the least improvement of the treated groups, showing fewer, if any, significant differences from the control group. AA subjects were significantly more likely to binge at the three-month follow-up than were subjects in other conditions. The main factor limiting the interpretation of these negative findings is that the individuals involved were court-referred and these may not be the type of problem drinkers best suited to the AA approach. This same reservation applies to a study by Ditman et al. (1967) who assigned court-mandated "alcohol addicts" to either AA, treatment in a clinic, or no treatment (probation only). Based on records of rearrest, both the AA and clinic-treated groups had poorer outcome. A third controlled study by (See Miller and Hester 1980) found no difference in outcome for AA and the comparison treatment for alcohol-abusing methadone maintenance patients.

Although, the results of these studies provide no scientific evidence for the effectiveness of AA, they also point to the need to more closely study the kinds of individuals for whom AA may be particularly effective. In their review, Miller and Hester (1986a) suggest that AA may work best for individuals who accept higher levels of authoritarianism, higher affiliative and dependency needs, greater severity of alcohol-related problems, and lower levels of education and psychopathology. It may also be the case that the most successful use of AA is as continuing care following professional treatment (Bradley 1988). AA has the advantage over more formal treatment methods in that it is readily accessible in most communities. In addition, the social support inherent in the AA approach is generally viewed as an important aspect of successful treatment by other means (e.g., Vaillant 1983). Finally, support for the twelve-step approach of AA can be found in the effectiveness of treatment programs based on these principles, such as the Minnesota Model (Cook 1988; Keso and Salaspuro 1990). Given their widespread availability and the fact that there is no cost to the individual or government, the use of AA, and similar self-help groups should be encouraged. At the same time, however, they should not be viewed as appropriate for all people with alcohol and other drug problems and evaluation studies should continue to examine their effectiveness for particular types of individuals.

There have been no published evaluation studies of AA, or other self-help groups, in a Canadian context. However, contributions have been made to this literature such as that by Ogborne and Glaser (1981) and Ogborne (1982) through a major review of the literature of characteristics of affiliates of AA and a review of relevant evaluation approaches and issues.

Treatment Context and Duration

The research reviewed above concerns the effectiveness of different types of treatment interventions and modalities. Another body of evaluation studies has focused on the comparative effectiveness of treatment in different contexts (e.g., inpatient vs. outpatient) and of varying duration.

One might assume, on the basis of "common sense," that the most effective treatment programs would be those that are longer and more intensive. A number of studies have compared the effectiveness of residential treatment to less intensive, less expensive non-residential alternatives. Miller and Hester (1986a), after reviewing 12 controlled evaluations, found not a single study showing inpatient treatment to be superior to nonresidential alternatives. They note that these studies were of high quality, using either random assignment or careful matching, generally including extended follow-up, and a sample of problem drinkers who would otherwise have been routinely admitted for inpatient care. Not only did those undergoing outpatient treatment do as well as those undergoing inpatient treatment—they often did significantly better.

The early and classic studies were conducted by Edwards and Guthrie (1966, 1967) who randomly assigned severe problem drinkers to inpatient (nine weeks) or outpatient (eight visits) treatment and found no significant differences in outcome at either six or twelve months. Edwards et al. (1977) and Orford et al. (1976) randomly assigned severe problem drinkers to either a single session of counselling and advice or an intensive program of inpatient and outpatient options, including AA. At no point over two years of follow-up did the data suggest that the intensive treatment regimen offered any significant advantage over the single counselling session.

Chick et al. (1988) also compared brief versus extended treatment, and, within the brief treatment condition, compared very brief advice to more comprehensive advice. Simple advice involved telling the patient, in the presence of a significant other and in less than five minutes, that they had an alcohol problem and that the only treatment was to stop drinking. Patients given more comprehensive advice spent 30 to 60 minutes with a psychiatrist who encouraged the patient and significant other to reflect on why a radical change in drinking was necessary and how that could be achieved. Extended treatment included the above advice, but patients also had access to detoxification and further appointments or inpatient or outpatient attendance at a two- to four-week milieu and group therapy-based treatment program. Although extended treatment resulted in a more sustained reduction of alcohol-related problems, it did not increase the likelihood of a patient achieving stable abstinence, or stable problem-free drinking, beyond that provided by the more minimal interventions. The more comprehensive advice was not found to be more effective than simple advice.

Longabaugh et al. (1983) compared the effectiveness of partial hospitalization (i.e., day treatment) to that of inpatient treatment. Both groups received the same program, except the partial hospitalization subjects went home at night and on weekends, whereas the inpatients returned to their hospital unit. Both groups showed a significant increase in the number of days abstinent after treatment and there were no significant differences between the two groups in post-treatment measures of drinking behaviour at six-month follow-up. Trends in the data favoured the partial hospitalization group and confirmed that this approach was at least as effective as inpatient treatment, and it could be delivered at a significantly lower cost. These positive findings remained at a two-year follow-up (Fink et al. 1985).

In general, these and other studies in the international literature have found no significant differences in outcomes between people with alcohol problems receiving treatment in inpatient versus outpatient, partial hospitalization, or day clinic settings. Canadian studies have confirmed this general finding. Annis and Liban (1979) compared a group receiving detoxification and treatment at a halfway house with a matched sample receiving only detoxification. At a three-month follow-up no difference in total drunkenness episodes had been recorded. Smart et al. (1977) randomly assigned severe problem drinkers to outpatient, halfway house or inpatient treatment with outcomes favouring the outpatient group or those clients who refused any of the three options. McLachlan and Stein (1982) at the Donwood Institute in Toronto randomly assigned patients to a four-week program at either an inpatient or day treatment clinic. During the follow-up year no differences emerged with respect to alcohol or other drug use and a variety of other outcome measures. On one measure (days in hospital compared to the pretreatment year) the day treatment cases were significantly improved over the inpatient group. An uncontrolled follow-up study of clients treated at a day treatment program in Chatham, Ontario, found positive outcomes comparable to that achieved in more costly residential programs (Malla 1987). Similar findings were obtained in follow-up studies of clients treated on a day basis at AADAC programs in Alberta (Dyer 1984; Dyer 1986), and an outpatient program in Quebec (Grenier 1983).

There has been only one controlled study comparing short-term residential treatment to outpatient treatment for individuals with drug problems (Wilkinson and Martin 1983; cited in Martin 1990). The study involved young multiple drug users and compared two formats of residential treatment with the same program offered on an outpatient basis. Overall, no differences were observed in outcome between the residential and outpatient options at one- and two-year follow-up. Although one of the residential formats was associated with better outcomes than the other two options, this seemed to reflect the specific procedures used in that format rather than a benefit of residential treatment per se. It is also noteworthy that over two-thirds of eligible cases refused to participate in the study with the majority citing their unwillingness to accept the residential treatment options.

The debate on whether the effectiveness of treatment is related to the duration of the intervention has also been studied. The assumption that more treatment is better is based on some studies that show a correlation between length of treatment and success of outcome (Armor, Polich and Stambul 1978). However, the results of such uncontrolled studies are inconclusive, since confounding variables, such as severity of problem and patient motivation, may account for both the length of stay and the positive outcome. There are also uncontrolled evaluations that show low or negative correlations between length of treatment and outcome (e.g., Brook and Whitehead 1980).

Four controlled studies comparing the outcomes of short and long inpatient stays showed that shorter stays were at least as effective as longer stays (Miller and Hester 1986a). For example, Mosher et al. (1975) randomly assigned alcoholics to either a short (nine day) or a long (30 day) inpatient stay, combined with detoxification and outpatient aftercare. Follow-up data at three and six months on drinking, other drug use, work status and anxiety revealed no significant differences in outcome between the two conditions. In an uncontrolled study by Jones and Sawka (1984) at the Henwood Treatment Centre in Alberta, client outcome was not associated with the duration of residential treatment. Where studies do show differences in outcome between short and long stays, they tend to favour the former (Miller and Hester 1986a).

Findings on the effectiveness of different lengths and intensities of outpatient care have been less consistent. Some studies using non-random, matching designs have suggested that longer treatment may have a modest advantage (e.g., Robson et al. 1965; Smart and Gray 1978). Other uncontrolled studies such as that by Nutter (1982) in Alberta have found no differences among clients receiving long-term counselling (three or more visits) compared to short-term counselling (one or two visits). Studies using an evaluation design with random assignment have found no advantage to longer or more intensive outpatient treatment (e.g., Edwards et al. 1977; Powell et al. 1985; Zweben et al. 1988).

The data suggest, then, that more treatment is not necessarily better treatment. It appears that shorter, less intensive outpatient treatment is generally at least as effective as longer, inpatient treatment. The argument in favour of day treatment, outpatient and other non-residential options is largely economic since the same or better outcomes appear to be achieved at a substantially lower cost than inpatient care. However, there may be certain subsets of patients who do require more intensive, inpatient care especially those with more severe problems (see section below on matching clients to treatment).

The general direction of these findings concerning treatment context and duration are substantiated by the Canadian studies included in the above review. The contributions to this literature by McLachlan and Stein (1982), Brook and Whitehead (1980), Smart and colleagues (e.g., Smart et al. 1977) and Zweben et al., (1988), have been particularly noteworthy given the strong methodologies employed. The many follow-up studies undertaken by AADAC in Alberta also represent significant Canadian evaluation studies (e.g., Jones and Sawka 1984; Nutter 1982; Atwood 1986). Annis (1986a) has also provided a significant and influential review of this literature or treatment context and duration.

Within this general discussion of the comparative effectiveness of treatment delivered in different contexts and over varying duration, two other issues are worthy of brief discussion. The first is the effectiveness of different approaches to detoxification, since this often involves a discussion of the cost-effectiveness of providing this service in different types of settings. The second issue concerns the role and effectiveness of longer term residential programs such as halfway houses, and therapeutic communities.

Detoxification Programs: When an individual who is physically dependent on alcohol or other drugs stops all use of the substance the individual will experience a withdrawal syndrome, usually opposite in nature to the symptoms of the intoxication. Detoxification refers to the process by which individuals who are dependent on alcohol or other drugs recover from intoxication in a supervised manner so that withdrawal symptoms are minimised (Heather and Tebbutt 1989). The more severe the physical dependence, the more severe the withdrawal syndrome is likely to be and the more assistance will be required.

The detoxification process may be supervised on either an outpatient (e.g., home, outpatient clinic) or inpatient basis (e.g., specialized detoxification facility, hospital ward). Detoxification may be undertaken without the assistance of any medication (i.e., a "non-medicated" or social approach) or with the aid of medication (i.e., a "medicated" approach). In the latter case, the drugs used to assist the individual through withdrawal have similar actions to the substance to which dependence has developed. Commonly used drugs include diazepam and chlormethiazole for alcohol withdrawal, and cloridine or methadone for opiate withdrawal. Heather and Tebbutt (1989) and DenHartog (1982) provide the most recent and comprehensive reviews of the literature on the effectiveness and cost-effectiveness of these different medicated and non-medicated approaches.

In many countries, and especially in the U.S., the standard approach to detoxification has been the medicated approach, undertaken within specialized detoxification units staffed primarily by medical personnel. The social, non-medicated model was part of a movement to decriminalize public drunkenness that resulted in incarceration, in favour of a more humane, rehabilitative approach to the skid-row problem (O'Briant 1974/75; O'Briant et al. 1976/77). Largely on the basis of Canadian research in the 1970s into the effectiveness of the social detoxification model (Annis 1979), this approach has gained acceptance around the world. Research into this model has consistently shown that withdrawal symptoms can be relieved by providing a safe, non-stimulating environment with support provided by trained staff, usually non-medical professionals or lay persons (DenHartog 1982). This research has also shown that only a very small percentage (1-5%) of individuals coming to the attention of such a non-medical facility require medical attention in a hospital setting. Further, the social model has been shown to be more effective in linking clients to treatment resources after the detoxification process is complete (e.g., McGovern 1983). Thus, these specialized, non-medical detoxification facilities have been shown to be as effective, and certainly more cost-effective (Sparadeo et al. 1982), than medically oriented inpatient units. The research evidence, however, still points to the need for a medicated approach in some instances of severe withdrawal, and most countries now have a mix of medical and non-medical inpatient detoxification facilities (DenHartog 1982).

Interest in outpatient or home detoxification models has increased in recent years as part of the general trend toward non-institutional approaches to treatment. In addition, outpatient or home detoxification is a more appropriate service delivery model for small urban, rural and remote areas which do not have the population base, and hence the service demand, to justify the establishment of an inpatient detoxification unit.

Detoxification on an outpatient basis involves the supervision of an individual through the withdrawal process while the individual continues to reside at home, but with daily or spaced visits to a community service or professional for medication and/or other assistance. Tennant (1979) and Stinnett (1982) provide a description of an outpatient detoxification protocol. Feldman et al. (1975) described one of the first evaluations of a medicated, outpatient approach and concluded that it was a cost-effective, safe and therapeutic alternative for a majority of cases in need of detoxification. This has been confirmed in several subsequent evaluation studies (e.g., Stinnett 1982; Webb and Unwin 1988; Hayashida et al. 1989).

Home detoxification is similar to an outpatient model in that the individual continues to reside at his or her normal residence, but with daily or spaced contact with a helping professional at home. Home detoxification may be on a medicated basis supervised by a health professional (e.g., Stockwell et al. 1990), or a non-medicated basis supervised by a non-medical professional or lay person. In both the medicated and non-medicated approaches, family members and significant others typically provide support during the detoxification process. The home detoxification model has only a short history and, therefore, has not been evaluated very frequently. A program in Exeter, England, is the best known in the international literature and has been the subject of a comprehensive evaluation by Stockwell and colleagues (Stockwell et al. 1986; Stockwell et al. 1990; Stockwell 1989). Results of these studies have shown home-based detoxification to be as safe and effective as inpatient care, even for the severely dependent problem drinker. The approach was shown to be very acceptable to clients and families (the large majority preferred this option over inpatient care) and contributed to a higher than expected participation in subsequent treatment and positive treatment outcomes. A recent unpublished study from Australia compared clients receiving home detoxification to a matched group receiving inpatient care and found no significant differences in outcome at 12-month follow-up (Bartu (1989) cited by Stockwell et al. 1990).

Criteria have yet to be firmly established that would indicate the appropriateness of using inpatient, outpatient or home-based detoxification, although the general principle has been advanced that the latter approaches are more suited to individuals thought likely to experience only mild to moderate withdrawal symptoms (Heather and Tebbutt 1989). Stockwell et al. (1990), however, report the success of the Exeter home detoxification program with severely dependent cases as well.

Sausser et al. (1982) stress that perhaps the most important criteria for outpatient (or home) detoxification is the support system that exists for the client, including not only the family, but also A.A., other self-help groups and/or treatment services. They suggest screening criteria for inpatient detoxification include the lack of a proper home environment and medical conditions such as evidence of seizure activity, hallucinations, severe hypertension and tachycardia. Several rating scales have been developed to monitor the severity of withdrawal symptoms (Gross et al. 1973; Shaw et al. 1981; Stinnett 1982; Saunders 1987; 1988). More research is needed to assess how ratings scales such as these can help match patients to various types of detoxification approaches, and also evaluate their effectiveness.

As noted above, the Canadian contribution to the international literature on the effectiveness of different approaches to detoxification has been substantial through the pioneering work of the Addiction Research Foundation in Ontario during the early 1970s. This work showed quite conclusively the value of the non-medical, social detoxification model from a therapeutic and economic point of view (Annis et al. 1976; Annis 1979). When subsequently replicated and advertised in the U.S. (O'Briant 1974/75), this stimulated a major change in the delivery of detoxification programs in that country. Similar changes occurred in other developed countries.

Another program of research at the ARF and the University of Toronto focused on the role of pharmacological agents in the withdrawal process and complemented the work on the non-medical approach. For example, this research showed that the large majority of emergency department patients can be safely withdrawn from alcohol without drugs and with supportive nursing care (Naranjo et al. 1983). This research program also led to the development of one of the rating scales cited above for the severity of withdrawal symptoms (Shaw et al. 1981).

As the international literature now begins to more fully explore outpatient and home detoxification models, there is a need for evaluation studies of these models in Canadian settings.

Long-term Residential Programs: In addition to inpatient detoxification centres and traditional, treatment-oriented short-term residential facilities, other residential alcohol and other drug programs exist that are more long-term in nature. Some such programs are referred to as "recovery homes," "halfway houses," or "three-quarter-way houses" since they were developed to provide extensive social support and adjustment to individuals making the transition from more intensive residential treatment to independent community living. Some recovery homes were also developed to work closely with detoxification centres and the chronic drunkenness offender who use such facilities. Stays in recovery homes and similar long-term settings are usually three-months or more.

Very little research has addressed the effectiveness of these long-term residential facilities. In Miller and Hester's (1980) overview of the literature, the results were not particularly encouraging. However, as noted by Martin (1990), these programs serve individuals who are less likely to achieve the most favourable outcomes, and evaluation of the programs must adopt criteria for successful outcome that may fall short of the ideal. This is underscored by the results of an early study in Ontario that showed quite poor outcomes, but which may have underestimated rates of improvement through the selection of the outcome measures (Ogborne 1978).

Another type of long-term residential program is the therapeutic community (TC). These programs represent a major treatment approach for individuals who are dependent on drugs other than alcohol (although alcohol is also significantly involved in a majority of cases). The TC relies on principles of mutual self-help, an emphasis on work, the use of peers as role models and staff as rational authority (Heather and Tebbutt 1989). The general approach is to restructure an individual's lifestyle and attitudes toward drug-taking through a process of re-socialization. There is a heavy reliance on confrontational techniques.

There have been no controlled evaluations of TC's and conclusions drawn from the research that has been done are severely limited by concerns about the selection factors which bring people into these programs, as well as the high drop-out rate. In a recent review (Institute of Medicine 1990b) high success rates were typically reported for "graduates" but drop-out rates typically ranged from 75-85%. There is a general consensus that the length of time the individual participates in the TC is positively related to outcomes (e.g., Heather and Tebbutt 1989). However, an important Canadian study failed to confirm this relationship (Brook and Whitehead 1980). Most reviews of the effectiveness of the TC approach conclude by noting that despite the lack of solid evidence about program effectiveness, there is reasonably good evidence that the approach is more *cost-effective* than the other major alternative for this population, namely incarceration (Institute of Medicine 1990b).

Assessment and Matching of Clients to Treatment

The two preceding sections of this chapter have focused on the effectiveness of different types of treatment interventions or modalities and the different duration and contexts in which these interventions may be delivered. One of the overriding conclusions from the review of this literature is that, given the diversity of the population seeking treatment, not all types of interventions or programs will necessarily be effective for all types of individuals in need of assistance. It is now widely accepted that treatment effectiveness is likely to be maximized by matching the specific problems and strengths of the individual to the specific type of intervention or program. Further, the potential value of such client-treatment matching underscores the need for the comprehensive assessment of each individual and the development of individualized treatment plans.

It is beyond the scope of this review to describe and assess the value of different strategies and techniques for the assessment of people with alcohol and other drug problems. Heather and Tebbutt (1989) and Institute of Medicine (1990a, 1990b) provide very comprehensive and practical discussions of these strategies and techniques. In general, assessment should focus on the quantity, frequency and pattern of past and present alcohol and other drug use, the level of dependence and the nature and extent of alcohol and other drug-related problems (e.g., health, social, intrapersonal). Assessment should also focus on the client's level of motivation for change. There is an emerging consensus as well that the client's expressed needs and requests for assistance are an important part of the assessment process and the effective matching to treatment. Finally, assessment should take into account the individual's social context and involve family members and significant others where appropriate.

Researchers at the ARF in Ontario have contributed significantly to the development of assessment protocols and instruments. Skinner and colleagues have developed or evaluated the psychometric properties of several instruments including the Alcohol Dependence Scale (Skinner and Allen 1982; Horn et al. 1984); the Michigan Alcoholism Screening Test (Skinner 1979) and the Drug Abuse Screening Test (Skinner 1982a). Annis (1982) has developed the Inventory of Drinking Situations, an assessment protocol closely tied to relapse prevention procedures (see below). Other research at the ARF has focused on assessing the validity of different techniques for determining the quantity, frequency and pattern of alcohol use, currently and over the individual's lifetime (e.g., Sobell et al. 1988). ARF research and program staff also developed ASIST (Addiction Research Foundation 1984), a detailed and very practical assessment protocol. The ASIST protocol is widely used among specialized assessment and referral centres in Ontario, which in and of themselves represent a unique community-based approach to the delivery of assessment services (Ogborne and Dwyer 1986; Ogborne and Rush 1990). Descriptive studies and qualitative process evaluations of these specialized assessment and referral centres indicate that they are widely used by a variety of community professionals and closely integrated into the local treatment system (Ogborne et al. 1984). However, only about 10% of all cases in the Ontario treatment system are assessed at these centres (Ogborne and Rush 1990). As in other jurisdictions, most client assessment occurs upon entry into a treatment program and it is debatable the extent to which this serves only as a screening function for that particular program or as a process leading to a highly individualized treatment plan (which could include referral to a range of other community services).

As noted above, the fundamental purpose of comprehensive client assessment should be to match the individual to the required treatment intervention and thereby maximize treatment effectiveness. Most studies of treatment effectiveness try to establish outcome averaged across individual differences in the client population. Studies concerned with treatment matching, on the other hand, are concerned with the interaction of client type and treatment type – that is, the extent to which treatment has a very selective effect with specific client variables. Although it seems to be a very common-sense assertion that individuals with varying needs and characteristics will respond more positively to different kinds of interventions this is actually a very complex area of research from a conceptual and methodological point of view. For example, results may vary depending on the outcome criterion being used (e.g., motivation for treatment, compliance with treatment, reduction in alcohol or other drug use). In addition, the matching of "treatment" to client needs can refer to treatment modality (e.g., group or individual psychotherapy), treatment duration or setting (inpatient or outpatient), treatment therapist (peer or professional), or treatment goal (moderation or abstinence). For a thorough review of the relevant issues and findings, the reader is referred to Institute of Medicine (1990a), Marlatt (1988), and Miller and Hester (1986b), Finney and Moos (1986), Glaser (1980), and Skinner (1982b).

Some studies search for matching variables using a correlational or "predictor" approach, whereby the investigator seeks to identify patient characteristics that are consistently associated with outcome within a variety of treatment programs. Patient characteristics fall into several categories such as demographic variables (e.g., age, gender), information processing variables (e.g., cognitive abilities), personality variables (e.g., self-esteem), and environmental context (e.g., social support). Miller and Hester (1986b) provide the most comprehensive review of research in the alcohol field using this predictor approach and conclude that no one client characteristic emerges from the literature as predictive of positive outcome *regardless of the type of treatment received*. They go on to review a wide range of studies seeking client characteristics that predict successful outcome *within* specific treatment modalities (e.g., client conceptual level being associated with positive outcome in psychotherapy (McLachlan 1972)). In a later review of matching criteria for adolescent substance abusers, Hester and Miller (1988) note the lack of empirical data to establish such criteria for this population.

The other major group of studies searching for matching variables examines the utility of different client characteristics in predicting outcome *across* different treatment approaches (Miller and Hester 1986b). The strongest evidence comes from research randomly assigning clients to these approaches, but other quasi-experimental designs are also valuable (Finney and Moos 1986). A study described in more detail below by McLellan, Woody, Luborsky et al. (1983) exemplifies a non-experimental approach providing valuable data. In this study, after clients were randomly assigned to inpatient and outpatient alternatives, they were considered "matched" or "mismatched" on the basis of post-hoc matching criteria. Matched clients had better outcome than mismatched clients.

Research studies have yet to provide conclusive empirical support for the "matching hypothesis" and the search is under way to identify the criteria by which clients should be matched to treatment. The recent reviews of this research (Institute of Medicine 1990a; Miller and Hester 1986a, 1986b; Heather and Tebbutt 1989) point to the following factors as good candidates for consideration as matching criteria at the present time. The reader is cautioned that these criteria are derived largely from research with problem drinkers and that little empirical support exists for matching criteria for drug abusers (Hester and Miller 1988).

Problem Severity: Clients with more severe alcohol problems seem to derive more benefit from intensive treatment (though not necessarily inpatient treatment) whereas clients with less severe problems benefit as much, if not more, from less intensive interventions. This is supported by the work of Orford et al. (1976) who compared intensive versus minimal treatment and found that among severe problem drinkers, all successful cases had received the intensive treatment alternative, whereas 80% of the failures had received the minimal intervention – a pattern that was reversed for the less severe cases. McLellan, Woody, Luborsky et al. (1983) followed this up in a prospective study. McLellan, Luborsky, Woody et al. (1983) employed a measure of psychiatric severity to predict outcome retrospectively from a variety of inpatient and outpatient programs. Based on a six-month follow-up and self-report measures of outcome, they found that patients with high levels of problem severity fared equally poorly in inpatient and outpatient programs, whereas patients at low levels of severity did equally well regardless of setting. They assigned clients to one of several treatment options based on the usual intake procedure and then categorized clients as matched or mismatched on the basis of post-hoc matching criteria from their previous research. Clients with more severe problems did not do as well in outpatient treatment and clients with less severe problems did not do as well in inpatient treatment.

Cognitive Factors: Research has suggested that more positive outcome will be obtained when clients are matched to a treatment option congruent with several cognitive characteristics. McLachlan (1972, 1974) found that patients matched to directive or non-directive therapy on the basis of their "conceptual level" (e.g., high conceptual-nondirective therapy) did better than patients who were similarly mismatched. Some studies suggest patients with internal versus external locus of control do better when matched to non-directive versus directive therapy (e.g., Abramowitz et al. 1974), although the research is not consistent in this regard (e.g., Schmidt 1978).

Life Problems: The specific problems in various aspects of the client's daily living may indicate the differential value of matching the client to various components of the broad-spectrum approach to treatment. For example, Rosenberg (1979) found that the effectiveness of relaxation therapy was improved when delivered to clients who were high in anxiety compared to those for whom this was not a major problem. Azrin et al. (1982) found that training in social or job-finding skills is most appropriate for clients deficient in these areas.

Perceived Choice: Clients who chose their treatment from among a list of alternatives appear to show greater acceptance of, compliance in and improvement following treatment, relative to clients offered only one alternative. Although this has been substantiated in only one controlled study (Kissin et al. 1971), in the absence of a comprehensive list of other matching criteria it suggests that clients be allowed to make informed choices among a range of plausible alternatives (Miller and Hester 1986b).

There have been few empirical studies in Canada directly evaluating the potential of these and other matching criteria for improving treatment effectiveness. The most notable studies are those by McLachlan (1972, 1974) discussed above with respect to matching treatment to the client's conceptual level, and the work of Annis and Chan (1983) and Sanchez-Craig and colleagues (1984). Annis and Chan (1983) randomly assigned alcohol offenders to receive or not receive confrontational group therapy and found that clients high in self-esteem did better if they received the group therapy, whereas clients with low self-esteem did worse with the group therapy, or better without it. The study by Sanchez-Craig et al. (1984) is interesting in that non-dependent problem drinkers did equally well with either controlled drinking or abstinence as their goal in a cognitive-behavioural treatment program. However, the controlled drinking goal was more attractive and therefore more likely to retain this population in treatment. This finding highlights the need to consider more than treatment effectiveness in terms of reduced drinking or related problems when searching for matching variables.

Although the number of empirical studies is small, significant Canadian contributions have been made to this area through comprehensive literature reviews (e.g., Ogborne 1978) and advancements at the conceptual and theoretical level (e.g., Glaser 1980; Skinner 1982b).

Relapse Prevention and Continuity of Care

Just as the development of an effective treatment plan must take into account the unique individual problems and strengths identified through comprehensive assessment, there is evidence that treatment effectiveness is increased through the careful planning and provision of services to deal with difficulties that commonly arise after the period of formal treatment ends. Similarly, an effective treatment plan must consider issues in the continuity of care both within and across the different services with which the client is involved. This may involve systematic procedures for the prevention of relapse or the provision of services such as aftercare or case management.

Relapse Prevention: This approach builds on the work of Prochaska and di Clemente (1986) and their model of change in the addictive behaviours. This work was discussed above with respect to motivational interviewing as a promising behavioural treatment approach. Relapse prevention acknowledges the difficulty in the *maintenance* of changes in behaviour and seeks to counteract the social/psychological precipitants of relapse (e.g., negative emotional states, interpersonal conflict and social pressure). The work of Marlatt and colleagues (e.g., Marlatt and Gordon 1980; Marlatt and George 1984) has been particularly influential in this area. Clients are assessed to identify high risk situations and are taught skills to deal with these situations. In treatment, there is a heavy reliance on the principles of social learning theory and much attention is devoted to increasing clients' self-efficacy, or the belief that they can successfully handle these high risk situations.

Although there is considerable research evidence that the development of self-efficacy is associated with positive treatment outcomes (see Annis and Davis (1989a) for a brief review and Burling et al. 1989), there are as yet few controlled evaluation studies of this approach. Annis and Davis (1988) report on an uncontrolled follow-up study showing large decreases in drinking over a six-month follow-up of a small group of problem drinking clients given relapse prevention training. Reduced drinking was related to enhanced self-efficacy. Relapse prevention training was evaluated in a controlled trial in an unpublished study from this same research team (Annis et al. 1987). They randomly assigned 83 employed problem drinkers who had completed a three-week inpatient program to receive relapse prevention training or traditional outpatient counselling. On the basis of the assessment protocol, clients were considered to be at risk for relapse in either a wide range of situations (generalized risk) or in very specific situations (differentiated risk). Results showed that the clients with differentiated risk profiles had a significant reduction in daily drinking in the relapse prevention condition compared to those in counselling. There was no difference between treatment conditions for those with a generalized profile of risk. This matching effect is consistent with expectations from the relapse prevention model.

Another evaluation study providing support for the relapse prevention approach is that by Chaney et al. (1978) discussed earlier in this report under skills training methods. There is a conceptual overlap between the relapse prevention approach and the skills training methods discussed above under behavioural treatments. Chaney et al. (1978) found that a group given problem solving skills training in order to cope with situations likely to lead to relapse had better outcomes on various measures of drinking behaviour than either of two control groups — group discussion of high risk situations or conventional hospital treatment.

There is currently considerable enthusiasm in the treatment field for relapse prevention techniques since they offer the promise of dealing with the difficulties of long-term changes in addictive behaviour. More research is required to determine the extent to which the approach can achieve this objective.

Annis' work in Toronto is the most notable Canadian contribution to work relapse prevention (e.g., Annis 1982, 1986b; Annis and Davis 1989a, 1989b). Much of this work is discussed above in terms of the protocols developed for assessing high risk drinking situations (Annis 1982) and the evaluation studies of a relapse prevention treatment model (Annis et al. 1987). Key elements of this treatment model are now being incorporated within a more traditional treatment program in Ontario and a comprehensive evaluation of the relapse prevention component is currently under way (Zarebski et al. 1990).

Continuity of Care: It should be obvious from the wide range of treatment interventions and programs considered in this and other reviews, that an individual seeking treatment for an alcohol or other drug problem can become engaged in a rather complex array of services. This can occur within any one program providing, for example, detoxification, assessment, residential and non-residential alternatives and a variety of specific treatment methods. The complexity of the interaction between client and treatment increases when one considers that these services may be spread over more than one program in the community. There is an implicit assumption in the field that the treatment provided to an individual will be more effective (or at least more efficiently delivered) if it is coordinated within, and across, the services the client is involved in. The term "continuity of care" reflects this assumption and connotes the importance of coordinating client care over time, as well as at any particular moment in time (Martin 1990).

The term "aftercare" has been traditionally used to describe care that continues after a formal period of treatment ends, typically a period of short-term residential treatment. It is a less appropriate term for the delivery of outpatient services. There have been few evaluation studies of traditional approaches to aftercare. Some studies suggest a positive relationship between outcome and the provision of aftercare contacts (e.g., Pittman and Tate 1969; Pokorny et al. 1973; Vannicelli 1978). Other research, such as that by Dubourg (1969) and Armor et al. (1978), offers little evidence for this relationship. In the Armor et al. study, outcome data from 44 alcoholism treatment centres were analyzed and no differences were found in outcomes of patients receiving inpatient care alone and patients receiving outpatient aftercare in addition to their inpatient stay. These findings are consistent with those cited earlier in this report that extended periods of treatment and extensive patient contact are generally not more effective than more minimal interventions (e.g., Zweben et al. 1988). At present, there is too much variability in the application of "aftercare" services to warrant generalizations about the value of certain types of continuing care services following a more formal period of treatment. In addition, because of the heavy reliance on correlational evaluation methods in studies of aftercare services, the cause-effect relationship between participation in aftercare and outcome remains unclear. The potential benefits of aftercare services also vary for different types of client populations. This is illustrated, for example, by an evaluation of a community aftercare program in Quebec for the homeless. Comparison of program participants to a matched control group showed few differences on measures of drinking and other drug use, but significant differences in terms of housing, financial, and social circumstances (Péladeau 1988).

"Case management" is a much broader term than aftercare (Johnson and Rubin 1983), with the core components for mental health services (including alcohol and other drug services) being defined as:

- assessment of current strengths, weaknesses and needs;
- planning to identify services appropriate to the particular needs of the client;
- linking clients to needed services and ensuring that these linkages are maintained;
- continuous monitoring and evaluation of progress; and
- interceding on behalf of the client (advocacy) to ensure that the treatment system responds equitably and effectively to the client needs.

Graham and Birchmore Timney (1990) provide a recent and very comprehensive discussion of case management as it applies specifically to the delivery of alcohol and other drug services. They note the many parallels between case management provided by these services and case management provided by mental health services generally. The development and evaluation of case management in the alcohol and other drug field has, however, lagged behind that in the mental health field. In particular, there is considerable controversy concerning several issues, including whether or not the case manager should provide therapy, the various roles the case manager should assume with the client, the background and training of case managers and whether case management should be provided by a centralized resource in the treatment system or embedded within every program. Graham and Birchmore Timney (1990) note further that there is a lack of evaluation of alternative case management models and a need for evaluation studies specifically concerned with design and implementation issues. Since case management embraces so many different functions and services, it has been recommended that the various components be identified and then process as well as outcome evaluation efforts be focused on these individual components (Graham and Birchmore Timney 1989).

In Canada, a controlled evaluation study of case management was conducted in Kingston as part of an evaluation of a community treatment system development project (Lightfoot et al. 1982). Individuals were randomly assigned to receive or not receive ongoing case management (referred to in the study as "primary care") in addition to their comprehensive assessment. The outcome data were interpreted as providing support for the case management service. However, the high loss-to-follow-up and the method used in the analysis to compensate for this problem preclude such a definitive conclusion.

Pearlman (1984a, 1984b, 1984c) reported on an evaluation of case management as part of a research project concerned with a broader system of treatment services. This series of studies focused primarily on the effects of case management on the process of delivering treatment and the definition and role of the case manager. It was reported that case management did not reduce drop-out, but did increase participation in treatment following intake and assessment (Pearlman 1984a).

Birchmore Timney and Graham (1989) undertook a comprehensive descriptive study of case management services in Ontario and found that various aspects of this type of service were widely available in treatment programs across the province. However, as was noted in that survey, and more recent overviews of the Ontario system (Martin,1990), few addiction programs provide the full range of services covered under the general rubric of case management. Some evaluation studies of case management being delivered in treatment centres or specialized assessment and referral centres are currently under way and are focusing on the different components of the case management function (e.g., Graham, Birchmore Timney and Bois 1990). Graham, Saunders, Flower et al. (1990) have also been undertaking a comprehensive evaluation of an outpatient service for elderly problem drinkers which in many respects constitutes an evaluation of case management. Much of the evaluation effort to date has been concerned with developing specific measures for monitoring the outcomes of elderly problem drinkers, as well as measures of the treatment/case management interventions. In a correlational analysis of these data, positive client outcomes tended to be associated with certain client characteristics (e.g., more open and cooperative, greater severity of alcohol problems), as well as the type of intervention received (e.g., improvement in cognitive/mental health were associated with interventions aimed at that life area).

In summary, more evaluation studies are needed to determine the benefits of various types of continuing care and case management services for different populations. As exemplified by the work of Graham and colleagues, this will require more innovative approaches to the evaluation design and the measurement of outcome than has been the case in most of the published literature in this area.

Systems Issues in the Delivery of Treatment Services

As clearly implied in the preceding section concerning continuity of care and case management of individuals seeking alcohol and other drug treatment, the issue of treatment effectiveness does not apply only at the level of a single type of intervention or program. One can also consider the extent to which the overall network of services available within a community, or a broader jurisdiction, work together to achieve positive outcomes and the efficiency with which these outcomes are achieved. The general issue of service or system coordination has been much discussed in the alcohol and other drug treatment literature (see for example, Ogborne and Rush 1983), but seldom evaluated in terms of its contribution to client outcomes. The assumption remains that a coordinated network of services will be more efficient in terms of resource allocation and utilization, and more effective in terms of client outcome.

It is beyond the scope of this review to provide a detailed treatise of the systems approach to the delivery of alcohol and other drug treatment services. There is a growing international literature concerned with alcohol and other drug treatment from the systems perspective (Klingeman and Takala 1987). The work of Glaser et al. (1978), Pattison (1982) and Holder and Straus (1972) have been particularly influential and have contributed to several analyses of the delivery of alcohol and other drug treatment services within various jurisdictions (e.g., Glaser et al. 1978).

Canadian contributions to this systems approach have been particularly important in influencing this international literature. In the 1970s, the delivery of treatment services within the ARF Clinical Institute in Toronto were analyzed, then re-developed according to a systems perspective (Glaser et al. 1984a, 1984b, 1984c). This so-called "core-shell" approach was one of the first attempts to advocate for comprehensive, but centralized, client assessment which would then match clients to various treatment options. Client care was coordinated through case management services; at the time these were referred to as "primary care" services. This approach formed the basis for a systems analysis of the overall delivery of alcohol and other drug treatment services in Ontario (Marshman 1978; Ogborne et al. 1985). Since 1980, periodic surveys of the Ontario treatment system have monitored treatment services and evaluated the changes in the network relative to objectives for program development established as a result of this systems analysis (e.g., Rush and Ekdahl 1990). These studies have highlighted, for example, the rapid growth in a network of assessment and referral/case management services across the province (see also, Ogborne and Rush 1990).

Other studies derived from this systems perspective have focused on specific communities rather than the province as a whole. Graham and Brook (1985), for example, analyzed the patterns of service utilization within the treatment agencies in and around London, Ontario, and found quite distinct systems of care within this community network.

In provinces other than Ontario, the systems perspective to alcohol and other drug treatment has clearly influenced program development (Rush and Ogborne, in press). However, evaluative studies at the systems level have not been published. A study describing the Quebec treatment system was conducted in 1987 (Brochu et al. 1987) and the results compared to Ontario (Rush and Brochu 1991). Several differences between the two provinces were observed in the nature and overall capacity of the two treatment systems and the mix of public versus private facilities. Strategic planning for community alcohol and other drug services such as that undertaken by Lamarche and colleagues in Montreal (e.g., Lamarche et al. 1987) also reflect a systems approach to planning and program review.

Methodological Issues in the Evaluation of Treatment/Rehabilitation Programs

Most reviews of the literature on the effectiveness of treatment programs provide extensive discussion of the poor methodology that has plagued evaluation studies. It is typical for results to be reported, followed by a statement that these results cannot be given great weight for a number of methodological reasons. While researchers working in the field appear to be hearing the calls to improve the quality of treatment outcome research (Longabaugh and Lewis 1988), the bulk of the literature is fraught with methodological problems. Many of these problems have been referred to in the various topical summaries in this report and are discussed briefly below. They are more systematically dealt with in several recently published reviews of evaluation issues and methodology in the alcohol and other drug field (e.g., Longabaugh and Lewis 1988; Sobell et al. 1987; Sobell and Sobell 1989; Martin and Wilkinson 1989).

Baseline Data. One problem is that many studies fail to gather data on the patient's status before treatment. Many of those that do gather such data, do so only for a very short period of time — often 30 or 60 days. Since the time preceding treatment is frequently a crisis period, and not representative of the patient's status over the long term, this provides poor baseline information. Consequently, evaluations can only report that patients have improved relative to their condition during crisis (Mandell 1979; Wells et al. 1988a). Longabaugh and Lewis (1988) suggest that patients' patterns of drinking be systematically described for at least the year preceding treatment. They also suggest that personal wellbeing, performance in various life roles, and physical health status be evaluated for the 12 months prior to treatment. The same time-frame has been suggested by Wells et al. (1988a) for use in studies of treatment of drug abuse.

Reviews of the treatment evaluation literature have found that inadequate reporting of subject background and drinking history variables was as much a problem in studies published from 1980 to 1984 as it had been in studies published between 1976 and 1980 (Sobell and Sobell 1982; Sobell et al. 1987). Pre-treatment data for such variables as severity of dependence, chronicity of drinking problems, and amount of drinking were reported in only about one-half of the studies they reviewed. They also found that pretreatment data were often not gathered for variables assessed at follow-up.

Controlling for client characteristics. Another problem is that client characteristics have often been ignored. In some cases, such basic variables as the gender, age and ethnicity of the sample are not included in the final report (Singer 1983). When subjects are randomly assigned into treatment conditions, one modality may benefit some types of subjects, while another modality will benefit others. When the groups are compared, both treatments may appear to be equally effective or ineffective, due to a "cancelling out" effect, as effective treatment-patient combinations are balanced by ineffective ones within the same groups. What needs to be determined is how client characteristics interact with the type of treatment to produce certain outcomes. This interaction is what is at the root of the "matching hypothesis" that has been getting increasing attention in the literature. Client and treatment characteristics need to be carefully described so that treated populations can be compared. In most cases, data are "collapsed," making an analysis of patient-treatment matching impossible.

Random assignment and control groups. The research design of many studies makes it impossible to separate the effects of treatment from "spontaneous remission." Without a "no treatment" control group, one cannot confidently attribute any improvements to treatment. A review of data on untreated control groups in 12 studies found abstinence rates ranging from 20-49% at one-year follow-up (Mandell 1979). Given that a significant proportion of the population may improve without any treatment, it is important to include a no-treatment control group so that the additional benefit of treatment, if any, can be identified. However, even though a no-treatment control group may be desired by the evaluator, ethical constraints may limit feasibility. Further, a no-treatment control only involves people with alcohol or other drug problems who have sought treatment and who may therefore be different from the overall population to which the study is hoping to generalize. Thus, while an evaluation design including a no-treatment control condition is desirable in many cases, it should not be viewed as an essential aspect of outcome studies.

Studies comparing different treatment options are highly valued in the treatment outcome literature, but problems arise in interpretation when subjects are not assigned randomly into the treatment conditions. Sometimes, the reader is not even told how subjects were assigned. Thus, it is impossible to tell whether results are due to differences in treatment or to differences between groups. Possible pre-treatment differences between treatment groups are often not analyzed (Sobell et al. 1987).

Defining the intervention. Many researchers fail to describe the treatment program in any detail. The reader may be told that skills training or relaxation training or individual psychotherapy was used, but these modalities are not described in sufficient detail to be implemented or evaluated in other settings. Researchers also often fail to show that treatment effectiveness is related to the "active ingredients" of the treatment program (Longabaugh and Lewis 1988). The "component approach" to program evaluation has been cited as a means of analyzing the treatment process and establishing the link between program implementation and treatment outcome (Moos and Finney 1983; Miller and Hester 1988; Graham and Birchmore-Timney 1989).

Selection bias. Most treatment program evaluations exclude a number of potential subjects because they do not fit program criteria. Factors such as psychological stability, physical health, age, sex and treatment goals (e.g., controlled drinking versus abstinence) are often used to determine whether the person is appropriate for participation in the study. The result of these criteria is that subjects who have the poorest prognosis are often excluded. Thus, outcomes may be biased in favour of higher levels of effectiveness than if treatment had been undertaken with a representative sample of subjects. It is desirable for subjects in treatment outcome studies to be representative of the actual population being treated. If this is not possible, the manner in which those included in the study differ from the total population must be clearly described. Researchers sometimes fail to clearly identify the criteria for exclusion, making it difficult to determine the generalizability of the findings.

Long-term follow-up. The success with which long-term goals are met is often not evaluated. Studies have tended to show that as the length of time from treatment increases, the number of subjects who can be considered to be "successfully treated" decreases. Long-term follow-up, though costly, is essential to adequate evaluation. There is, however, little agreement in the literature about what is meant by "long term." A minimum of a year following the initiation of treatment has been suggested (Longabaugh and Lewis 1988), as has one year following termination of treatment (Singer 1983; Wells et al. 1988b). Longer follow-up periods do have their drawbacks. As the length of follow-up increases, the impact of extra-treatment variables is likely to increase, and attrition is likely to become more of a problem. Longer follow-ups may help to elucidate the influence of extra-treatment variables on eventual outcome more than they assess the effects of treatment per se (Wells et al. 1988b).

Valid and comprehensive outcome measures. Outcome measures are often inadequate. A review of 265 studies of alcoholism treatment found that 80% had used consumption as the principle outcome measure (Mandell 1979). While this is an important factor, it is not the only one, since alcoholics who stop or reduce their drinking do not necessarily improve in other areas of life functioning, such as vocational and marital adjustment. The field would benefit from a move towards a "multivariate" conceptualization of alcohol problems, which gets away from the abstinence versus "controlled drinking" debate, and includes life adjustment as a criterion of success (Voris 1982). There has been a slight increase in reporting non-drinking outcomes, such as marital/familial and emotional functioning, and the need for additional treatment (Sobell et al. 1987). Data on the extent to which subjects have received additional treatment during follow-up is essential, since it could influence outcome (Singer 1983). Moreover, consumption measures should not be restricted to "abstinent" and "non-abstinent," since gradations in improvement must be taken into account. The recent emphasis on "harm reduction" as the goal of alcohol and other drug treatment is consistent with this need to expand the traditional outcome criteria for evaluation studies. An example is the reduction in risk of HIV-infection as a legitimate treatment goal of programs for intravenous drug users.

A very high proportion of studies rely primarily on self-report data. There is some debate in the literature on whether self-reports of drinking behaviour and problems are valid (Singer 1983). Some researchers argue that problem drinkers cannot be counted on for accurate reports. For instance, Mandell (1979) cites studies which have shown that blood alcohol levels and self-reports of moderate drinking are not closely associated in between 10% and 50% of drinkers. Others argue that most types of self-reports are valid and that broadly based outcome measures are not likely to be significantly affected by underreporting errors. For instance, Polich (1982) found that only 2% of his sample was misclassified because of underreporting error. Fuller (1988), in his review of the issue of self-reports, suggested that if one were to weigh all the literature supporting and refuting the use of alcoholics' self-reports, the former would outweigh the latter. However, he noted that many of the studies had serious limitations, and that the results of several studies finding self-reports to be erroneous cannot be easily dismissed. In sum, given the questionable validity of self-reports, the inclusion of corroborative data from significant others, physiological measures, and multiple self-report measures is desirable (Fuller 1988). Fortunately, more and more studies are using such a multivariate approach. A comparison of studies published from 1976 to 1980 to those published between 1980 and 1984 revealed a significant increase in the use of multiple sources of outcome data (Sobell et al. 1987).

Attrition from treatment and/or follow-up. Studies on the effectiveness of treatment programs often have high rates of subject attrition. Follow-up data from subjects may be unavailable because of a change of address, death, morbidity and a variety of other reasons. A high proportion of patients often do not complete the treatment offered and many studies of treatment effectiveness have based success rates only on those clients who completed treatment (Longabaugh and Lewis 1988). However, it is probably inappropriate to assume that subjects who are "lost" are similar to the rest of the population. There has been increasing recognition of this, and many researchers now conservatively estimate treatment impact by assuming that "lost" subjects have had poor outcomes.

The methodological issues reviewed above represent the concerns typically expressed by evaluation experts in the alcohol and other drug field. These are the concerns most often raised when the objective is to establish a cause-effect relationship between the client experiencing the program and improvement in their problem. The ultimate objective is to then generalize the results to a larger population and use the information as a base for program development on a wider scale. Few can argue with the value of these overall objectives given the disparity that exists today between research findings and the design and content of treatment programs (Peele 1990; Miller and Hester 1986a). These concerns, however, are somewhat removed from the issue of how the evaluation of programs can provide useful feedback for ongoing program improvement. In this broader view of the function of program evaluation it is seen as an integral part of program management. This raises an issue that will be discussed only briefly in this report, but which is extremely important when one assesses the quality and overall value of evaluation studies in the treatment area.

An important objective is for all treatment programs to include some evaluation function within the context of their overall program management. This may be accomplished in a variety of ways, including, for example, incorporating evaluation into the quality assurance process; using the data from a management information system; conducting follow-up, descriptive and/or observational studies of clients; obtaining client satisfaction data; or conducting analyses of resource utilization. The Canadian evaluation studies reviewed for this report represent a good cross-section of these different types of evaluation studies, all of which no doubt contributed in some measure to program-related decisions (Eliany and Tracey 1991; Chamberland 1990). It is inappropriate and, in many respects discouraging, to those who manage treatment programs, to be told that experimental and quasi-experimental studies with a one or two year follow-up and a wide range of outcome variables are the only valuable evaluation strategies. Such studies may not be feasible or practical within the constraints of a project's budget and there are other types of evaluation studies that may also be useful.

A useful approach, and one that has been argued in the evaluation field generally (Pancer and Westhues 1989) and in the alcohol and other drug field specifically (Moos and Finney 1983; McCarty 1984), is to select an evaluation strategy that is appropriate to the specific stage in the development of the treatment program at that particular moment in time. This then opens up a wide range of process, outcome, or economic evaluation studies that may be relevant to the needs of program and that may still contribute valuable information to a wider audience. It is noteworthy, for example, that while the issue of cost-effectiveness is one of the most salient issues in the field today for both researchers, and program planners and managers, comparatively little attention has been devoted to the economic evaluation of alcohol and other drug treatment programs.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

The problems associated with the use of alcohol and other drugs are both very prevalent within Canadian society and very costly in social and economic terms. Although there are several positive signs that the use of alcohol and other drugs is on the decline among the population as a whole, problems related to this use remain at a serious level. This is especially true among certain subgroups in the population (e.g., street youth).

The response to the diverse range of alcohol and other drug problems in Canada has been multifaceted. Just as the seriousness or risk of experiencing these problems can be viewed along a continuum, so too can the community's response to these problems. The community's response may be divided into two broad categories — *health promotion* and *health recovery* — aimed at individuals at the two ends of the spectrum of risk and problem severity. Within each of these two broad categories there are many different types of programs. For purposes of this review, early intervention programs were summarized separately in recognition of their emerging status as a key component of the continuum of community services. Thus, this review was organized into three separate chapters — health promotion, early intervention and treatment/rehabilitation.

The objectives of this review have been ambitious. The overall focus of the report has been on the evaluation of alcohol and other drug programs across the full range of community programs described above. One purpose has been to consolidate a massive literature on the effectiveness of these programs to assist program planners and service providers in developing and implementing programs that are consistent with the research findings. A second purpose has been to examine Canadian evaluation studies in relation to the broader international literature. This was intended to highlight not only the important Canadian contributions to this literature but also provide some direction as to how the evaluation function within Canada's alcohol and other drug programs might be improved.

One limitation has been the lack of balance in the literature being reviewed in terms of programs for alcohol versus programs for drug abuse. In addition, there was some disparity in the availability of studies from different parts of Canada. Further, the scope of the report did not allow sufficient attention to be devoted to special subpopulations such as youth, women, or the elderly. Finally, there was considerable variability in the type and quality of evaluation studies undertaken in Canada and in the broader international context. Within the constraints of these limitations, this report has in large part achieved its objectives.

What Kinds of Programs "Work"?

The complexity of alcohol and other drug problems, and the difficulties encountered in conducting evaluations of different types of programs, restrict one's ability to make definitive statements about program effectiveness. These difficulties notwithstanding, the literature does provide guidance on several key issues and program alternatives.

Health promotion. With respect to health promotion programs, the strongest and most consistent evidence of program effectiveness has been obtained for selected alcohol control policies. Increasing, or at the very least not decreasing, the minimum drinking age is an effective means of reducing alcohol-related automobile crashes, injuries and fatalities among the relevant age group. The data also suggest that restrictions on the retail availability of alcohol, especially off-premise sales, are also effective ways to reduce alcohol-related problems. Another strategy strongly supported by the research evidence is to increase the price of alcoholic beverages through taxation. Preliminary evidence from a few evaluations of server intervention programs suggests that they also can make a significant contribution to preventing alcohol-related problems such as drinking and driving.

The evidence concerning educational approaches for alcohol and other drug prevention in various settings such as schools, universities and mass media, is more equivocal. Although such programs may change knowledge, attitudes, and/or short-term behaviour there is scant evidence of enduring behaviour change. Since these programs have widespread support of the general public and public/school administrators, it is likely that such programs will continue to be implemented. This is especially true for school-based programs. Thus, the most prudent approach to the delivery of these programs would now seem to be to develop comprehensive, multifaceted school programs that are well-integrated with a broader, community-wide health promotion strategy. These themes of comprehensiveness and integration have emerged over the past decade, with the focal point being the development of community-wide interventions. As concluded by Moskowitz (1989) in his recent review, the educational components of these interventions are probably best directed at changing social norms and the social/cultural environment in the direction that would promote and foster individual behaviour change. Community-wide interventions are a relatively new approach to the prevention of alcohol and other drug problems and, although the research findings are promising, there is insufficient evaluation data as yet to adequately judge their effectiveness.

Some researchers do stress, however, the importance of consistency between community standards as identified in education and public health campaigns as a means to promote responsible behaviour and regulation systems in which individual behaviour is likely to occur (Wallack, 1984a; Cahalan, 1987). Existing alcohol and other drugs marketing and availability practices tend to encourage sales and consumption and thus contradict health promotion objectives. Policy-makers, although becoming more aware of these inconsistencies, have still to alter existing arrangements.

Early intervention. This review covered many different types of early intervention programs. Evaluations concerned with the effectiveness of educational and counselling programs for people arrested for impaired driving have not provided definitive evidence of sustained behaviour change. Similarly, studies of the traditional EAP approach to substance-abuse programs in the workplace have not yielded evidence of positive changes in relevant outcomes of the program participants, due largely to the lack of controlled evaluation studies and widely varying objectives and implementation strategies. There is evidence accumulating that the broader "wellness" approach to health promotion programming in the workplace improves some health-related risk factors and outcomes of the participants. However, such programs may or may not have an early intervention component specific to alcohol and other drug use, and there is little evidence as yet that these wellness programs can influence alcohol or other drug consumption and related problems.

Considerable effort has been devoted over the last decade to develop and evaluate strategies for the early detection of alcohol and other drug problems among people using various health and social services in the community. Concerns remain about the value of many of these strategies (e.g., biochemical indicators, some psychosocial questionnaires, physical signs and symptoms) for the detection of problems as they are beginning to emerge, as opposed to when they have become firmly entrenched in a pattern associated with severe alcohol or other drug dependence. Currently, it would seem that psychosocial questionnaires (e.g., CAGE, AUDIT) hold the most promise as screening and case-finding protocols, especially given their brevity and ease of administration in various settings. The evidence regarding the effectiveness of a brief, behaviourally oriented, therapeutic component of early intervention programs suggests that participation in such programs is associated with improvement on selected outcome measures (e.g., reduced drinking).

Treatment/rehabilitation. With respect to treatment/rehabilitation programs, broad generalizations are particularly complicated due to the heterogeneity of the population seeking assistance, the variability in available services, the wide variety of criteria used to determine "effectiveness," and the lack of adequate evaluation studies for many approaches. Some types of evaluation studies focus on the overall effectiveness or efficiency of the community's system of services as opposed to any one particular program.

There is considerable evidence, and an emerging consensus in the field, that the improvements associated with treatment are greater than expected on the basis of "natural history." Comprehensive reviews of the literature conclude that 50-65% of individuals receiving treatment show improvement at follow-up. The data suggest further that about one-half of those who are improved will have ceased all drug or alcohol use or will have substantially reduced their consumption; the other half will have made major reductions in their level of consumption and significant improvement in other life areas. From an economic point of view, the data indicate that drug and alcohol treatment is a sound investment of the health care dollar.

There is no one treatment modality that has emerged as superior to all other approaches. It is clear, however, that the many approaches to treatment are not equally effective.

Pharmacological treatments of alcohol and other drug problems are quite specific to the particular substance being abused and their effectiveness is quite variable. Antidipsotropics, such as disulfiram or calcium carbamide, are now viewed as better-suited for selective rather than general application for the treatment of alcohol problems and as a component of a broader treatment strategy. With the exception of diazepan as an aid in alcohol detoxification, psychotropic other drugs are not considered an effective treatment strategy for alcohol and other drug problems *per se*. Research evidence suggests that methadone maintenance is the treatment of choice for opiate dependence, especially given its ability to reduce the risk of HIV infection among injection drug users.

Conclusions about the effectiveness of psychotherapy for people with alcohol or other drug problems are restricted by the many different perspectives and orientations that are said to fall under the psychotherapeutic approaches. Controlled evaluation studies tend not to support psychoanalytic, insight-oriented psychotherapy as a treatment approach for alcohol or other drug problems especially given the complexity of the treatment, the need for highly trained counsellors and the duration and cost of treatment. The evidence, however, is reasonably strong that the empathy and experience of the alcohol and other drug therapist or counsellor are positively related to treatment outcome.

Psychotherapy is but one of several commonly used approaches within treatment agencies that are not well supported by controlled evaluation studies. Other approaches with limited research support include, for example, alcohol and other drug education and confrontation. Alcoholics Anonymous and other self-help groups do not lend themselves very well to evaluation research and thus their effectiveness is largely unsubstantiated by traditional scientific criteria. Recent survey findings indicate, however, that individuals in need of treatment tend to choose mutual help programs such as AA (78%) rather than those provided by professionals (Eliany et al. 1989).

Behaviourally oriented treatment approaches for alcohol problems have received the most support from evaluation studies. Heather and Tebbutt (1989) argue that these also are the approaches with the strongest theoretical base, whether it be classical or operant learning theory or the more modern behavioural perspective subsumed under "social learning theory." In general terms, the evidence confirms one of the expectations drawn from social learning theory that "performance-based" treatment methods are superior to more traditional, "verbally based" methods such as psychotherapy or education. Behavioural approaches that are generally supported by the literature include family and marital therapy (especially for alcohol problems), aversive therapy, contingency management, and broad-spectrum treatment focusing on relaxation training, stress management and a range of skills training (e.g., social skills, problem solving skills). The contingency management approach exemplified by the community-reinforcement approach (CRA) of Azrin and colleagues (Azrin et al. 1982) is supported by some of the strongest and most consistent evaluation data in the treatment field. While the full CRA program may be too broad and expensive for routine application, the basic principles of contingency management should probably be more widely used in treatment programs. Behavioural self-control training or self-management training is also supported by a strong and consistent body of evaluation research. The moderate drinking goals usually inherent in this approach are typically viewed as being appropriate for people with less severe alcohol problems compared to those who are severely alcohol dependent. This issue has, however, not been fully resolved in the research literature.

More so than with many of the treatment modalities, the evaluation of these various behavioural approaches have highlighted the importance of matching the intervention to the specific strengths, weaknesses and needs of the individual client seeking assistance. The characteristics of the client entering treatment strongly influence the results that are obtained, and the effectiveness of treatment is likely to be maximized by matching clients to treatment. Although this "matching" hypothesis is not yet supported by a wide range of conclusive empirical studies, some factors have emerged as reasonable matching criteria for use at the present time for clients with alcohol problems (e.g., problem severity, selected cognitive factors, type of life problems and the perceived choice of the client). There is very limited evidence pointing to such matching criteria for clients with other drug problems.

The importance of matching clients to treatment highlights the need for the comprehensive assessment of each client and the need for a full range of community services. This speaks further to the need for detoxification services, and evaluation studies have consistently pointed to the social detoxification model as appropriate for the vast majority of cases. Outpatient and home detoxification approaches have received support in the literature but have not yet been implemented and evaluated on a wide scale. Long-term residential programs (i.e., recovery homes, supportive residences) remain an important aspect of the community's treatment and rehabilitation system but require more evaluation studies with outcome criteria more suitable for the chronic nature of the population served by these programs. The effectiveness of various types of continuing care services remains largely unknown due to varying perceptions of what is meant by "continuing care" and equivocal results from comparative evaluation studies. Relapse prevention techniques and case management are emerging as important functions within the community treatment system but their overall contribution to the effectiveness and efficiency of the system needs to be further evaluated. Several such studies are currently under way.

One of the most consistent findings in the treatment evaluation literature is that, for unselected clients, outpatient and day treatment options are more cost-effective than residential treatment for people with alcohol problems. Few controlled studies have compared residential and non-residential treatment for young drug abusers but the results that are available suggest residential treatment is less appealing and less cost-effective for the majority of this population.

Canadian Evaluation Studies

As noted previously, one of the limitations of the present review has been the lack of balance in the availability of evaluation reports from around the country. It is evident, however, from the available literature that several Canadian evaluation studies have made significant contributions to the international literature on the effectiveness of health promotion, early intervention and treatment/ rehabilitation programs. The results of the Canadian studies are also generally consistent with the findings from similar studies in other countries.

Many of the contributions to the international literature have been published by researchers and evaluation specialists at the Addiction Research Foundation (ARF) in Ontario. This reflects the clear mandate of the ARF for basic and applied research in the alcohol and other drug field. Much of the other research published in the international literature comes from individuals working in academic settings. The unpublished studies included in this review from Ontario, and many of the other provinces, tended to be more program-specific and not intended for a wide audience. This underscores an important distinction between evaluation research, where the objective is the production of knowledge that may lead to the development or enhancement of alcohol and other drug programs on a wide scale, and program evaluation, where the primary objective is to evaluate a specific program in order to provide feedback either for its ongoing improvement or other program-specific purposes such as accountability and resource allocation. Admittedly, there is a grey area between these two types of evaluation studies, but it is a useful distinction to note when providing an overview of evaluation studies in the alcohol and other drug field and other areas of study (see, for examples Cox (1990) and Bickman (1990)).

One reason that the distinction between evaluation research and program evaluation is useful, is that many of the methodological criticisms aimed at evaluation studies in the alcohol and other drug field have pertained to those studies with more basic research objectives. If the purpose of the research is to provide a solid empirical foundation for future program development, then criticisms such as the lack of a randomly assigned control group are quite valid. It is difficult to associate changes in the target group of the program with actual program participation without some of the fundamental aspects of research design in place. However, to level the same sort of criticism at *all* program evaluation studies is inappropriate, since completely adequate research designs from a scientific perspective may not be possible for ethical, administrative or financial reasons. It is difficult enough to establish a casual link between outcomes and program participation in tightly controlled research studies, let alone expect the same level of rigour in all evaluations of community programs. The program evaluation function should be viewed as an integral part of program management, and program planners and evaluators need to recognize the value of feedback provided by a wider range of evaluation and data collection strategies. As suggested by Pancer and Westhues (1989), the type and complexity of the evaluation should be congruent with the stage in development of the program at that particular moment in time.

A consistent theme across the three major sections of this report — health promotion, early intervention and treatment/rehabilitation — is the need for more process-oriented evaluation studies concerned with documenting factors influencing program implementation and actual program exposure. Questions concerning outcome have considerably less relevance if the program was delivered inappropriately, to the wrong target group or experienced in an altogether different manner than was intended. This need for more process-oriented, qualitative studies is evident for evaluation research that is intended for publication and wide dissemination of the findings as well as evaluations of a more management-oriented, program-specific nature.

Another consistent theme, and one that has not been dealt with to a great extent in this report is the lack of economic evaluation studies. It is surprising, given the lip service paid to questions of cost-effectiveness, that so few published or unpublished studies have been concerned with the economic aspects of health promotion, early intervention or treatment/rehabilitation programs. There are some positive signs in the Canadian alcohol and other drug field that more work of this nature is on the horizon (e.g., Marshman 1990).

Another theme that has emerged from this review is the need for more evaluation studies to be concerned with the adoption or diffusion of new knowledge that is generated by research. In some areas of study this has recently become a major focus for evaluation studies and it would seem to be needed in the alcohol and other drug field, given the disparity between common practice and knowledge already gained from research. For example, what are the factors inhibiting the adoption of many of treatment modalities that are now commonly recommended by comprehensive reviews of the literature (e.g., brief interventions, other behavioural-oriented treatments, contingency management). Similar concerns might be raised with respect to the area of health promotion, where one continues to see a heavy emphasis on didactic, alcohol and other drug education approaches and media campaigns in the face of research evidence that is inconclusive at best. An example in the early intervention area would be the very limited use in family medical practice of the CAGE questionnaire for the detection of problem drinking, despite almost a decade of very favourable reports of the value of this brief and low-cost manoeuvre (Rush et al. 1990). Evaluation studies concerned with the diffusion of new knowledge and techniques could be based on similar theoretical foundations as much of the new work in the field (e.g., social learning theory (Bandura 1977); model of change (Prochaska and Di Clemente 1986)).

One of the objectives of this report in reviewing Canadian evaluation studies in the alcohol and other drug field was to raise the consciousness of program planners and practitioners of the need for more research and program evaluation and to assist them in improving the quality of studies in which they become involved. In concluding this report, five issues will be raised that should be addressed in order to facilitate better evaluation studies in Canada.

The first issue is one of funding since adequate resources are required for good quality evaluation. The amount required for evaluation purposes may be substantial in relation to the overall program budget if, for example, program participants are to be followed up and comprehensive sets of data analyzed. Funding bodies need to recognize that the evaluation function can contribute significantly to ongoing program management and allocate resources accordingly.

A second issue is one of training since, even with adequate financial resources, program evaluation does require a particular skill set and an understanding of key concepts and terminology for it to be practised in a high-quality manner. Program managers, selected staff and personnel employed by funding bodies should receive more training in evaluation and a special attempt should be made to attract candidates for various positions who have training and experience in evaluation. In Ontario, for example, the Programs and Services Evaluation Research Department of the ARF offers an annual training course on program evaluation for managers and selected staff of Ontario's treatment services. Recently, the Canadian Evaluation Society published a list of training programs and courses in program evaluation (Canadian Evaluation Society 1990).

A third issue is the need for practical and feasible evaluation models and measures that can be used by practitioners and incorporated into the routine operation of the program and/or the program's management information system. In the case of treatment services and, in some respects, early intervention programs, this speaks to the need to incorporate evaluation into a broader quality assurance program. There is also a need for more guidance to be given to program planners and practitioners on appropriate outcome measures for follow-up studies.

A fourth issue concerns the need for better planned evaluation studies. Good evaluation practice today calls for an evaluation assessment to precede the actual conduct of an evaluation study (Posavac and Carey 1989; Rutman 1980). During the evaluation assessment, the evaluator seeks to describe the program and the context in which it is operating and clarify the program objectives and their suitability for evaluation. The *evaluation assessment* also examines the logic or rationale linking the delivery of specific interventions to changes that are anticipated as a result of program exposure. This may involve the development of a program logic model (Rush and Ogborne 1991), which can greatly facilitate the selection of the key questions and data collection strategies appropriate for the evaluation of the program at that particular stage in its development. Conducting an evaluation assessment helps ensure the evaluation is timely and relevant, and as rigorous as possible.

Finally, the practice of program evaluation in the Canadian alcohol and other drug field would be improved by having a better mechanism for sharing results. The publication of findings in national or international journals is the traditional means of disseminating research information. However, this means of communication is not appropriate for all types of evaluation studies, especially those dealing with management-oriented, program-specific concerns. Another common practice for disseminating evaluation findings is through presentations at conferences or participation in special proceedings or workshops. These avenues, however, are not feasible for many program planners and practitioners who are working on limited budgets. This was a difficulty experienced, for example, by members of a Special Interest Group on Program Evaluation of the now defunct Canadian Addiction Foundation.

One possibility for improving the communication of evaluation results that is worthy of exploration, is the development of a new reporting format for Canadian evaluation studies in the alcohol and other drug field. This could take the form of a brief case study report, perhaps following the guidelines recently recommended by Caulley and Dowdy (1987) for the field of program evaluation generally. The structure of the reporting series could be organized around health promotion, early intervention and treatment/rehabilitation programs. Each report might be limited to one or two pages using a standard format covering, for example, the design of the program and its objectives, the questions and issues that were addressed, the methodology, and the main findings and recommendations for future evaluations of similar programs. The development of such a national reporting series for Canadian evaluation studies may be an appropriate topic for discussion by the Canadian Centre on Substance Abuse and/or the Federal/Provincial Advisory Committee on Alcohol and Other Drug Problems.

It is anticipated that these various steps would go some measure toward improving the number and quality of program evaluations undertaken within health promotion, early intervention and treatment/rehabilitation programs in the Canadian alcohol and other drug field.

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